

THE CATALOGUE OF FILTER PRODUCTS

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ANPEL Laboratory Technologies (Shanghai) Inc. was established in 1997, which specializes in research and development, manufacturing and distribution of chromatographic products, chemical reagents and standards, labwares and analytical instrument consumables. As the leading manufacturer and supplier of chromatography and lab consumables in China, ANPEL has over 100 employees now, and the sale amount has reached more than 100 million RMB for recent four years.

ANPEL can provide about 500,000 kinds of products to scientific research personnel all over the country. The main customers cover pharmaceutical, environment, chemistry, clinical, food, biology, government, university, research institutions. ANPEL keeps fast and stable developing step. Now, we have about 5,000 customers which have long-term business, and the totally customers quantity is about 10,000. Customers enjoy our honest service and professional work.



Furthermore, ANPEL is awarded by Dun & Bradstreet as "Credit R11", achieved best credit degree and passed the certification of International Organization for Standardization again in 2008.

We have two parts of sale department – domestic and international. Our sales representatives operate in individual areas. Besides Shanghai – the headquarters, we also have 10 offices in main large cities of China that are Beijing, Guangzhou, Chengdu, Nanjing, Qingdao, Wuhan, Shenzhen, Shenyang and Zhengzhou, which makes a full distribution network. The international department take charge of Africa, Asia, America and Oceania.



ANPEL established a wholly owned subsidiary Grand Stable Analysis Technics (Shanghai) Co., Ltd., which take charge of R&D and production of our own products, two brands "ANPEL" and "CNW". In the production process, Grand Stable strictly implements the "6S" management and approved with ISO9001:2008 certification by Germany TÜV. We have two labs, one application lab, focus on application explore, hot spots study. Another QC lab, focus on product quality check. We have some Agilent, Shimadzu GC and HPLC, ultraviolet spectrophotometer, Metrohm Karl Fischer titrator. The Production Department has many advanced equipments for manufacture and check. Parts of process are under the management of computer – the quality management system.

We have three departments to control product quality and study hot spots of analysis. The Market and Technique department, the Production Department and Laboratories.

The Market and Technique department has two parts: Market department and Technique department. In Market department, there are several product managers, who take charge of different lines. Technique department take charge of training and application. Customers can get support in the shortest possible time.



The size of our warehouse is over 2000 m². The total products keep in stock are more than 15 million RMB. We have some own trucks which help us to distribute products all over China. We use Bar Code Management System to control the stock. The Purchasing Department take charge of the procurement from suppliers all over the world.

The Finance Department use software of financial affairs management with electronic data processing accounting. The system can screen and control every business and charge, to confirm the good running of the company. Our website <http://www.anpel.com.cn> or www.anpelsci.com — which provide general product prices, professional technical literatures and the newest information, which becomes a communicating platform between customers and ANPEL.

For the future we remain heavily committed to our development, to allow us to continue to bring innovative technologies and services to our valued partners and customers in analytical science in all corners of the world.



FILTER PRODUCTS

THE CATELOGUE OF ANPEL FILTER PRODUCTS

Why need to filter PAGE02

How to choose and use the filter PAGE03

Quality assurance from ANPEL PAGE05

Regular syringe filters PAGE07

Hydrophilic PTFE syringe filters PAGE08

With pre-layer syringe filters PAGE09

0.02um PVDF syringe filters PAGE10

Disposable Rubber-free Syringe PAGE12

Replaceable membrane syringe filters PAGE13

Filter membrane PAGE14

Vacuum Filter Holder PAGE15

Q&A PAGE16

Why need to filter

Filter is a routine measure increase chromatography consumable parts of life, simple and economic and effective. Basic HPLC solvent system including pool, pump, injector valve, chromatographic column, detector, and data recording system. Particulate matter and the growth of microorganisms, if cannot be effectively remove by filtering, can cause interference to almost every system accessories.

Filter the mobile phase

Through filter the mobile phase, can reduce the pollution of the sieve plate column clogging, fittings, pump valve damage, capillary congestion, poor peak deformation, impurity peak production and increase the possibility of noise.

Protect the pump

The pump is the most important single HPLC system components, common problems including the one-way valve, pump seal, blocking and bubbles. These problems maybe caused the baseline noise increases, lead to retention time don't return and pressure. Solvent through the pump head in the direction of the one-way valve control, and ensure the stability of the pressure. The presence of particulate matter can make check valve leakage, affect the flow rate and pressure. Then the pump seal has been in a consumption and wear, relative to other accessories are more likely to loss, has to be replaced every three to six months. If the gasket appear problem, cannot provide system with high pressure pump, pump head leakage, retention time will change. And washer clastic also can produce pollution to the system. If mobile phase evaporation causes buffer salt, will accelerate pump seal wear. So, that is why filter the mobile phase can increase the life of the pump seal.



Protect the injection valve

When the sampling valve work, valve rotating between stator and rotor surface, prompting micro channels on the surface of the conversion between, so as to realize the function of the LOAD and INJECT. The presence of particulate matter can lead to damage in the process of rotating surface design, lead to leakage or blocked. Quantitative ring may be blocked, the system pressure, difficult to sample, peak area. For automatic sampler, ensure samples without particles is very important to prevent plugging needle. Samples and mobile phase filter and filter online is the injection valve and the effective maintenance of chromatographic column.



In-line filters vs guard column

In-line filter is the very ideal means of protection, because the system of wear is inevitable, such as pump seal, sampling valve seal wear caused by the fragment. General inline filters can change the sieve plate is 0.5 μ m and 2 μ m pore size.

Guard column can hold on the chemicals and particulate matter which can blocking the sieve plate of the columns or caused the column bed collapse and efficiency decline. To protect column to the strong retention and irreversible adsorption of compounds to intercept down, but the 2 μ m sieve plate lacks enough to remove particulate matter. Samples and mobile phase filter can maintain to protect column adsorption capacity of chemical pollutants can longer maintenance efficiency.

Chromatographic column

Chromatographic columns mainly problem is chemical adsorption, particulate clogging and column bed collapse. Chemical adsorption can be protect by using guard column. Column bed collapse may be dissolved by the packing or pressure increases suddenly. If the peak shape serious trailing, divided, and retention time hasn't changed, so might be sieve plate blocked or stigma collapse.

In order to protect the chromatographic column and system, the recommended daily maintenance:

1. Filter the mobile phase using the filter membrane
2. Filter the samples using the syringe filters
3. Using 0.5 μ m in-line filters to intercept the particulate matter before sampling valve and pump

How to choose and use the filter

Filter Chemical Compatibility

Different materials have different chemical tolerance, The primary concern when choosing a solvent filter is solvent compatibility with the filter material.

Chemical compatibility table

C = Compatible

LC = Limited compatibility

IC = Not compatible

* = Not analyzed

SOLVENT	PTFE	PVDF	PES	CA/ CN	RC	PP	GMF	Nylon 6
ACIDS								
Acetic, Glacial	C	C	C	IC	C	C	C	LC
Acetic acid, 90%	C	C	C	*	*	C	C	*
Acetic acid, 25%	C	C	C	*	C	C	C	C
Acetic acid, 10%	C	C	C	LC	*	C	C	*
Hydrochloric, Concentrated	C	C	C	IC	IC	C	C	IC
Hydrochloric, 25%	C	C	C	*	IC	C	C	IC
Hydrochloric acid, 1N (3.3%)	C	C	C	*	*	C	C	IC
Sulfuric, Concentrated	C	IC	IC	IC	IC	C	C	IC
Sulfuric, 25%	C	IC	IC	IC	IC	C	C	IC
Nitric, Concentrated	C	IC	IC	IC	C	C	LC	IC
Nitric acid, 25%	C	C	IC	IC	C	C	LC	IC
Phosphoric acid, 25%	C	*	*	C	LC	C	*	IC
Formic acid, 25%	C	*	*	LC	C	C	C	IC
Trichloroacetic acid, 10%	C	*	*	C	C	C	*	IC
Citric acid	C	C	C	C	C	*	C	LC
Hydrofluoric acid	C	C	*	*	IC	LC	IC	IC
Boric Acid	C	C	C	C	C	C	C	LC
ALCOHOLS								
Methanol, 98%	C	C	C	IC	C	C	C	C
Ethanol, 98%	C	C	C	IC	C	C	C	C
Ethanol, 70%	C	C	C	C	C	C	C	LC
Isopropanol	C	C	C	C	C	C	C	C
n-Propanol	C	C	C	C	C	C	C	C
Amyl Alcohol (Butanol)	C	C	C	LC	C	C	C	C
Benzyl Alcohol	C	C	IC	IC	C	C	IC	LC
Ethylene Glycol	C	C	C	C	C	C	C	C
Propylene Glycol	C	C	C	LC	C	C	C	C
Glycerol	C	C	C	C	C	C	C	C
Isobutyl alcohol	C	C	*	C	C	C	C	C
ALKALIES								
Ammonium Hydroxide, 25%	C	LC	C	C	LC	C	C	C
Sodium Hydroxide, 3N	C	IC	C	IC	LC	C	IC	LC
Sodium hydroxide, 6N (22%)	C	IC	C	IC	IC	C	IC	IC
Potassium hydroxide, 3N (15%)	C	IC	C	IC	*	C	IC	IC
AMINES AND AMIDES								
Dimethyl Formamide	C	IC	IC	IC	LC	C	C	C
Diethylacetamide	C	*	*	IC	C	*	C	LC
Triethanolamine	C	*	*	C	C	*	*	C
Aniline	C	*	*	IC	C	*	*	C
Pyridine	C	IC	IC	IC	C	IC	C	*
Acetonitrile	C	C	LC	IC	C	C	C	C
ESTERS								
Ethyl Acetate/ Methyl Acetate	C	C	IC	IC	C	LC	C	C
Amyl Acetate/Butyl Acetate	C	IC	IC	LC	C	LC	C	C

This information was developed from technical publications, materials suppliers, laboratory tests, and field evaluations, etc., and is believed to be accurate and reliable. However, because of variability in temperature, concentrations, exposure time, and other factors outside of our control that may affect the use of the unit, we do not provide or imply a warranty with respect to such information. Users should verify chemical compatibility with a specific filter under actual use conditions.

SOLVENT	PTFE	PVDF	PES	CA/ CN	RC	PP	GMF	Nylon 6
Propyl Acetate	C	IC	IC	LC	C	LC	*	C
Propylene Glycol Acetate	C	*	IC	IC	C	C	*	*
2-Ethoxyethyl Acetate	C	*	IC	LC	C	*	*	*
Methyl Cellulosolve	C	*	IC	IC	C	C	C	*
Benzyl Benzoate	C	*	IC	C	C	*	*	C
Isopropyl Myristate	C	*	IC	C	C	*	*	C
Tricresyl Phosphate	C	*	IC	C	C	*	*	*
HALOGENATED HYDROCARBONS								
Methylene Chloride	C	C	IC	IC	C	LC	C	LC
Chloroform	C	C	IC	IC	C	LC	C	C
Trichloroethylene	C	C	C	C	C	C	C	C
Chlorobenzene	C	C	LC	C	C	C	C	C
Freon®	C	C	LC	C	C	C	C	C
Carbon Tetrachloride	C	C	IC	LC	C	LC	C	C
Butyl chloride	C	C	*	C	*	IC	C	IC
HYDROCARBONS								
Hexane/Xylene	C	C	IC	C	C	IC	C	C
Toluene/Benzene	C	C	IC	C	C	IC	C	C
Kerosene/ Gasoline	C	C	LC	C	C	LC	*	C
Tetralin/Decalin	C	C	*	C	C	*	*	*
Nitrobenzene	C	C	IC	C	C	C	C	LC
Cyclohexane	C	C	IC	C	C	C	C	LC
Trichloroethane	C	C	C	C	C	C	C	C
Trichloroethylene	C	C	IC	C	C	C	C	IC
Perchloro Ethylene	C	C	IC	C	C	C	C	C
KETONES								
Acetone	C	IC	IC	IC	C	C	C	C
Cyclohexanone	C	IC	IC	IC	C	C	C	C
Methyl Ethyl Ketone	C	LC	IC	IC	C	LC	C	C
Isopropylacetone	C	IC	IC	C	C	*	C	C
Methyl Isobutyl Ketone	C	LC	IC	*	C	LC	C	*
ORGANIC OXIDES								
Ethyl Ether	C	C	C	C	C	LC	*	C
Dioxane	C	LC	IC	IC	C	C	C	C
Tetrahydrofuran	C	LC	IC	IC	C	C	C	C
Triethanolamine	C	*	*	C	C	*	*	C
Dimethylsulfoxide (DMSO)	C	IC	IC	IC	C	C	C	C
Isopropyl Ether	C	C	C	C	C	C	*	*
MIXED SOLVENTS								
Phenol, Aqueous Solution, 10%	C	LC	IC	IC	IC	C	C	*
Formaldehyde Aqueous Solution, 30%	C	C	C	C	LC	C	C	C
Hydrogen Peroxide, 30%	C	*	*	C	C	*	*	C
Silicone Oil/Mineral Oil	C	C	C	C	C	C	C	*

※ The above data are for reference only, it is recommended that the test before use.

Effective Filtration Area

Increasing the effective filtration area can lengthen the life of a filter.

Throughput & Flow Rate

Choose suitable product according to different materials and diameters to meet the required volume capacity and flow rate.

Hold-up Volume

Filtration Volume	Diameter	Hold-up Volume
10mL	13mm	25 μ L
120mL	25mm	100 μ L

Surface Tension

Choose suitable membrane material according to the hydrophobic and hydrophilic of solvents, to avoid the filtration resistance is too large.

Extractables

A syringe tip filter extractable may be a membrane or housing formulation component, or a component introduced during the manufacturing or packaging process. There are several mechanisms (solubility, particle displacement, chemical interaction, and diffusion) whereby extractable materials may leach into the sample during sample preparation. The polymeric resins, solvents, pore formers and other chemical components such as housing materials utilized during device manufacturing may potentially extract. Solubility relates to chemical compatibility. As membrane and/or housing components become more soluble with sample fluid components, extractable materials will increase. To determine whether a syringe filter is compatible with the sample fluid, all sample constituents (both major and minor components) require consideration. Because solubility is dependent on temperature, concentration, and exposure time, all of these parameters are significant in determining chemical compatibility. If the sample volume is enough, a first 3 -5mL flush can be discarded to reduce extractables to an acceptable level.

Adsorption

Unwanted adsorption as well as the presence of possible extractables eluted from the filter during routine pharmaceutical sample analysis can be a serious problem to the results. No single analytical method can provide reliable information on comparative filter properties and the full range of extractables for all filters. We suggest you consider the adsorption when choosing the syringe filters to ensure the HPLC analysis result.

Applications for reference:

HPLC, UHPLC, LC/MS	Polyethersulfone, PTFE (Hydrophilic & Hydrophobic)
GC	Nylon, PTFE (Hydrophobic)
ICP-MS	PTFE (Hydrophilic)
CE	Nylon
Organic Solvents	PTFE (Hydrophobic), Nylon
Culture Media	PES, PVDF (Hydrophilic)
Protein Sequencing, Western Blot	PVDF (Hydrophobic)
High Particulate Loaded Samples -Organic Phase	Welded PTFE (Hydrophobic), with prefiltration
High Particulate Loaded Samples -Aqueous Phase	Welded PTFE (Hydrophilic), Welded Nylon

Instructions for use& Cautions

1. Before filling with sample, draw approximately 1 mL of air into the syringe. This will minimize fluid retention.
2. Draw your sample into the syringe, then connect the syringe to the syringe filter using a luer connection. Twist gently to ensure a secure seal.
3. Filter syringe contents into a vial. Afterwards, remove the syringe filter, draw air into the syringe, re-attach the syringe filter, and press the plunger to filter the residual sample. This will maximize sample recovery.
4. Use caution with syringes smaller than 10mL, otherwise the pressure they generated may exceed the maximum operating pressure.
5. ANPEL&CNW filtration products are disposable consumables, and not recommended for reuse.



Quality assurance from ANPEL

Production environment

ANPEL&CNW Membrane filter and syringe filter are all manufactured in the clean room. We strictly carry out ISO9000 quality standard system.



Quality control

ANPEL&CNW filtration products undergo many quality control tests to assure the quality stability. The quality control tests include visual examination, HPLC certification, bubble point test, maximum operating pressure test, liquid flow rate and hold-up volume, etc.

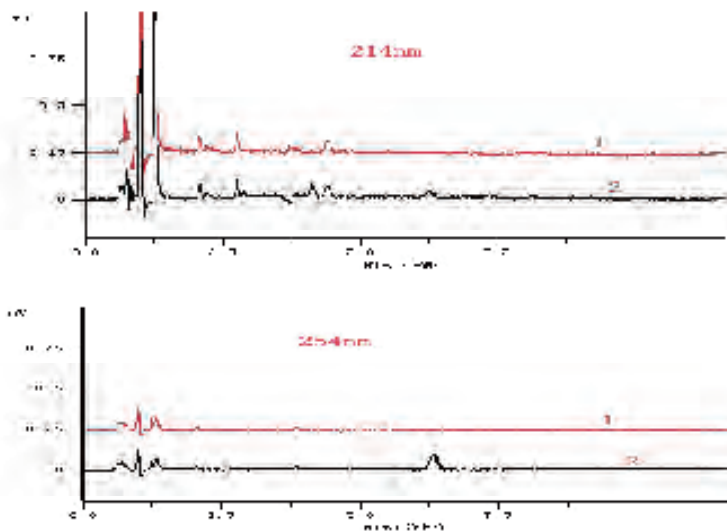
Hplc certified (uv detector for extractables)

HPLC certification intends to evaluate the UV-detectable extractives of ANPEL&CNW filtration products in methanol and water, to ensure that analytical results will not be compromised by extractable filter materials. Methanol or water is passed through each individual syringe filter or membrane, and a first 2mL eluted sample is collected and subjected to HPLC analysis at 214 nm and 254nm, using a mobile phase of 70:30 (v/v) acetonitrile: water, then compared to a blank of methanol or water.

Chromatographic test

HPLC test condition
Sample: 2 ml methanol filtered
Column: Athena C18, 4.6x150mm
Flow rate: 1.5mL/min
Detector: UV 254 and 214 nm
Mobile phase: 70:30 (v/v)
Acetonitrile/water
Temperature: 40.0°C
Injection volume: 10uL
chromatographic peak
1. Methanol blank
2. Methanol filteres

To prove the low solubility of the diaphragm, every batch of products before they go out commonly used for HPLC solvent compatibility test



Bubble point of different materials

Membrane Material	Bubble Point (Mpa)
Nylon	0.3
PES	0.2
PTFE	0.08
PVDF	0.09

Bubble point

The bubble point test is to confirm pore size and integrity of the membrane seal. A bubble point is the measure of the amount of air pressure required to force an air bubble through a wetted pore and is in inverse proportion to the size of the hole, the larger the pore, the less pressure required to form the bubble, and it relates to the surface tension of the liquid wetted the membrane. First, the membranes must be completely wetted, PES, Nylon, Hydrophilic PTFE and Hydrophilic PVDF membranes should be wetted with water, while Hydrophobic PTFE and Hydrophobic PVDF membranes should be wetted with absolute ethyl alcohol. Then the air pressure is slowly increased until a steady stream of bubbles is observed downstream of the filter. This pressure is recorded as the bubble point, it is expressed in psi, bar, etc.

Maximum operation pressure

Each batch of syringe filters must undergo maximum operating pressure test to ensure the syringe filter housings will not rupture at the design pressure.

Liquid flow rate

Liquid flow-rate tests are performed to ensure that ANPEL&CNW filtration product meets minimum specified flow-rate.

Hold-up volume

Test purpose: to evaluate the pure water (hydrophilic polyether sulfone, nylon, PTFE and hydrophilic PVDF) or anhydrous ethanol (hydrophobic PTFE and hydrophobic PVDF) residues in the filter, filter with solution after applying pressure flushing, above the bubble point pressure of residual volume called detention volume.

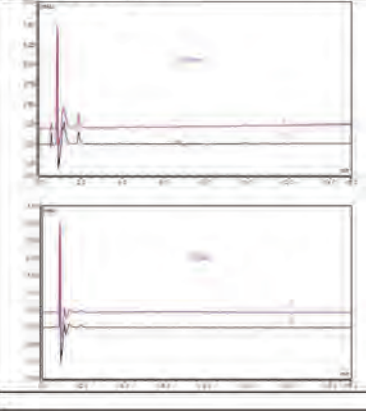
Test will filter before weighing, use a syringe injection water or ethanol, guarantee the import and export of the ruhr joint solution. Weighing again. With syringe injection of dry air, discharge solution, requires no more than bubble point pressure, weighing again. Finally, filter filled with solution, again with dry syringes from solution, keep a few seconds, let solution extrusion export ruhr joint, dry filter, is weighed. The last time the weight minus the weight of the dry filter is the detention volume.

Regulation: 13 mm filter, hold-up volume less than or equal to 25 ul;
25 mm filter, retention volume less than or equal to 100 ul;

Period of validity

General as long as the sealed in a cool, dry and environmental pollution-free gas preservation, can guarantee the service life of 2 years.

COA template

Certificate of Analysis			
PRECLEANTM 13mm Syringe Filter, welded, PTFE membrane(Hydrophilic), 0.45um, pink			
Art Number: 2.EF6101.0001			
Lot Number: O1600088			
Test Results			
Syringe Filter Lot Characteristics			
Properties	Results	Properties	Results
Membrane material	PTFE	Pore Size (um)	0.45
Wettability	Hydrophilic	Filtration Area(cm ²)	0.33
Thickness (mm)	0.12	Housing Material Cleanliness Test	Pass
Housing Material	Polypropylene	Volume Throughput (mL)	< 10
Hold-Up Volume (uL)	< 25	Maximum Operating Pressure (psi)	< 50
Inlet/Outlet	Female luer lock/Male luer slip	Bubble Point (psia)	0.09
Test Liquid	Pure Water		
Chromatography Test			
HPLC Conditions: Sample: 2 mL Methanol filtered Column: Athena C18, 4.6x150 mm Flow Rate: 1.5 mL/min Detector: UV 254 and 214 nm Mobile Phase: 70:30 (v/v) Acetonitrile /Water Temperature: 40.0°C Injection Volume: 10 uL			
Chromatographic Identification: 1. Methanol blank 2. Methanol filtered			
			
Quality Control Supervisor		Approval Date	
		2015-05-28	



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Regular syringe filters

Material Features

Polyethersulfone(PES): Hydrophilic membranes, high flow rate and high throughputs, low protein binding, low in extractables, and can be used to remove small particles, bacteria, viruses and fungi from aqueous phase. Normally used with pH range 3-12.

Nylon: Excellent chemical stability and flexibility, durable, hard to tear, can be sterilized in 121 °C . Suitable for filtration of aqueous and most organic solvents, such as the water filtration of electronic, microelectronic, semiconductor industry, and also the filtration of culture media, drugs, drinks, and high-purity chemical. Normally used with pH range 3-14.

Hydrophobic Polytetrafluoroethylene (PTFE): Broad solvent chemical compatibility, excellent particle retention, and compatibility with various sterilizing methods. Suitable for both liquid and gas filtration. Normally used with pH range 1-14.

Hydrophobic Polyvinylidene fluoride (PVDF): High mechanical and tensile strength, and have broad chemical and temperature resistance. Not suitable for the filtration of acetone, DMSO, THF, etc. suitable for the filtration of gas, steam and high temperature liquids. Normally used with pH range 2-13.

Regular syringe filters

Description	Packaging	Cat. No.
PRECLEANTM 13 mm Syringe Filter PES membrane, 0.45 μm, blue	100 pcs per cartridge	2.CF1101.0001
PRECLEANTM 13 mm Syringe Filter PES membrane, 0.22 μm, yellow	100 pcs per cartridge	2.CF1102.0001
PRECLEANTM 13 mm Syringe Filter Nylon membrane, 0.45 μm, white	100 pcs per cartridge	2.CF2101.0001
PRECLEANTM 13 mm Syringe Filter Nylon membrane, 0.22 μm, green	100 pcs per cartridge	2.CF2102.0001
PRECLEANTM 13mm Syringe Filter, PTFE membrane, 0.45um, orange	100 pcs per cartridge	2.CF3101.0001
PRECLEANTM 13mm Syringe Filter, PTFE membrane, 0.22 um, purple	100 pcs per cartridge	2.CF3102.0001
PRECLEANTM 13mm Syringe Filter PVDF membrane, 0.45 μm, red	100 pcs per cartridge	2.CF4101.0001
PRECLEANTM 13 mm Syringe Filter PVDF membrane, 0.22 μm, black	100 pcs per cartridge	2.CF4102.0001
PRECLEANTM 25 mm Syringe Filter PES membrane, 0.45 μm, blue	100 pcs per cartridge	2.CF1201.0001
PRECLEANTM 25 mm Syringe Filter PES membrane, 0.20 μm, yellow	100 pcs per cartridge	2.CF1202.0001
PRECLEANTM 25 mm Syringe Filter Nylon membrane, 0.45 μm, white	100 pcs per cartridge	2.CF2201.0001
PRECLEANTM 25 mm Syringe Filter Nylon membrane, 0.20 μm, green	100 pcs per cartridge	2.CF2202.0001
PRECLEANTM 25mm Syringe Filter, PTFE membrane, 0.45um, orange	100 pcs per cartridge	2.CF3201.0001
PRECLEANTM 25mm Syringe Filter, PTFE membrane, 0.2 um, purple	100 pcs per cartridge	2.CF3202.0001
PRECLEANTM 25 mm Syringe Filter PVDF membrane, 0.45 μm, red	100 pcs per cartridge	2.CF4201.0001
PRECLEANTM 25 mm Syringe Filter PVDF membrane, 0.22 μm, black	100 pcs per cartridge	2.CF4202.0001
PRECLEANTM 13mm Syringe Filter PP membrane, 0.45 μm, light blue	100 pcs per cartridge	2.CF5101.0001
PRECLEANTM 13 mm Syringe Filter PP membrane, 0.22 μm, invisible green	100 pcs per cartridge	2.CF5102.0001
PRECLEANTM 25 mm Syringe Filter PP membrane, 0.45 μm, light blue	100 pcs per cartridge	2.CF5201.0001
PRECLEANTM 25 mm Syringe Filter PP membrane, 0.22 μm, invisible green	100 pcs per cartridge	2.CF5202.0001



Hydrophilic PTFE Syringe Filters



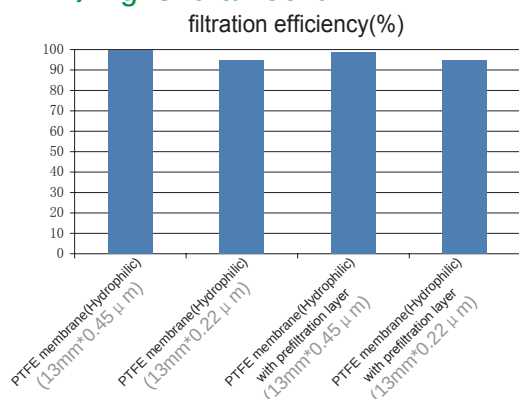
One kind of material instead of all varieties!
Suitable for filter contains strong acid, strong alkali aqueous solution, and the organic mixed solution of acid and alkali.



Made in clear room!
packed in easy-open can,
ensure non-contamination
during delivery
Can be reseal after open.

1 Excellent particle intercept performance

Hydrophilic PTFE syringe filter to remove particles
efficiency higher than 90%



Test conditions:

Filter solution: 300, 500 - nm polystyrene ball, concentration of Triton dilute aqueous solution with 0.1% to 0.1%,

Filtration efficiency (%) = (before filtering solution absorbance value - the filtered solution absorbance value before/filter solution absorbance value) x100%

3 Very low dissolution

Membrane filter and filter the dissolution may come from the diaphragm, the shell material, the introduction of the composition of the production, and so on. With samples to filter the dissolution may be caused by many reasons, such as dissolution, particulate matter to replace, chemistry or diffusion and so on. Polymer resin, solvents, the pore system as well as the shell material has the chance of solvent dissolution, associated with chemical solvent resistance, influenced by the factors such as temperature, concentration, contact time, so you can through the difference between material properties to choose.

2 Lower adsorption of compounds

Customers surveyed the different material and brand pin type filter adsorption of aflatoxins, the results are as follows:

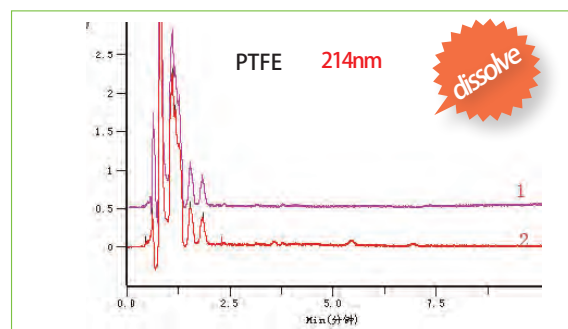
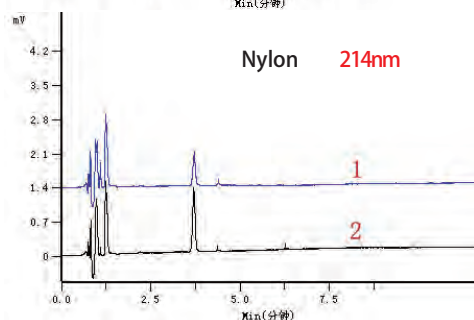
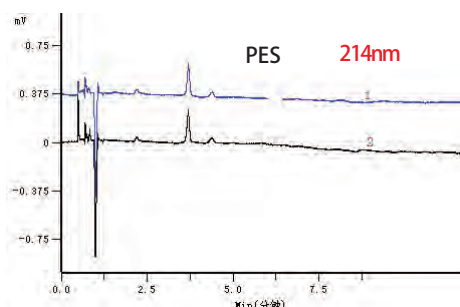
test samples	recovery rate (%)				
	AFTB1	AFTB2	AFTG1	AFTG2	AFTM1
Hydrophobic PTFE (ANPEL)	95.47	97.17	96.39	96.38	96.91
Nylon (ANPEL)	90.35	95.01	95.85	97.66	96.61
PVDF (competitor)	91.87	95.9	95.9	96.61	94.84
Hydrophilic PTFE (ANPEL)	98.26	97.45	94.62	99.11	95.69

Through data comparison shows that Ann spectrum PTFE needle filter is smaller to five aflatoxins adsorption, nylon membrane and another brand of PVDF membrane pin type filter for aflatoxin B1 adsorption slightly. This experiment USES 20% acetonitrile solution, a hydrophobic membrane when you need to use a little force to press in the past, and hydrophilic membrane can easily enough pressure in the past, the hydrophilic membrane performance is better than hydrophobic membrane.

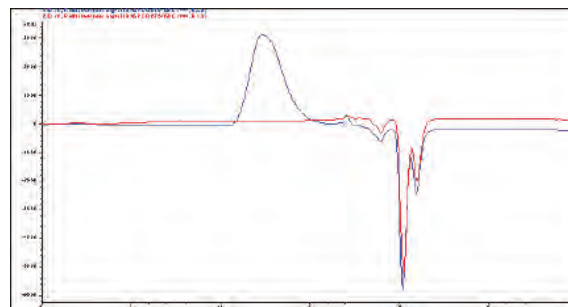
According to the result of HPLC background tests, compared with other material, PTFE material pin type filter the dissolution of the smallest.

Chromatographic peak:

1. The blank methanol/water solution
2. The filtered methanol/water solution



Tetrahydrofuran dissolved of commonly used plastic material, when the samples for the GPC analysis, need to consider tetrahydrofuran dissolution of needle type filter shell materials. Below as an actual case, the red line is map of ANPEL needle filter dissolution and the blue line is another brand map of PTFE needle filter dissolution and the difference is that the latter is more a dissolution peak, shows that there are some around the similar molecular weight compounds by dissolution, is likely to be caused by the shell material.



Hydrophilic PTFE syringe filters

Description	Packaging	Cat. No.
PRECLEANTM 13mm Syringe Filter, PTFE membrane (Hydrophilic), 0.45 μ m, pink	100 pcs per cartridge	2.CF6101.0001
PRECLEANTM 13mm Syringe Filter, PTFE membrane (Hydrophilic), 0.22 μ m, golden	100 pcs per cartridge	2.CF6102.0001
PRECLEANTM 25mm Syringe Filter, PTFE membrane (Hydrophilic), 0.45 μ m, pink	100 pcs per cartridge	2.CF6201.0001
PRECLEANTM 25mm Syringe Filter, PTFE membrane (Hydrophilic), 0.22 μ m, golden	100 pcs per cartridge	2.CF6202.0001

Syringe filters with prefiltration layer

This serial syringe filters with PP filter layer, pore size 5 μ m, specially designed for high particle content of the sample, pre filter eliminates most of the particles, the sample that is difficult to filter operation resistance smaller, filtration velocity faster!



Description	Packaging	Cat. No.
PRECLEANTM 13mm Syringe Filter, with prefiltration layer, PTFE membrane (Hydrophilic), 0.45 μ m, pink	100 pcs per cartridge	2.CF6101.0D01
PRECLEANTM 13mm Syringe Filter, with prefiltration layer, PTFE membrane (Hydrophilic), 0.22 μ m, golden	100 pcs per cartridge	2.CF6102.0D01
PRECLEANTM 25mm Syringe Filter, with prefiltration layer, PTFE membrane (Hydrophilic), 0.45 μ m, pink	100 pcs per cartridge	2.CF6201.0D01
PRECLEANTM 25mm Syringe Filter, with prefiltration layer, PTFE membrane (Hydrophilic), 0.22 μ m, golden	100 pcs per cartridge	2.CF6202.0D01

Hydrophilic PVDF 0.02μm Syringe Filter

Applied in EN 71-3:2013 (E) Safety of toys-Part 3: Migration of certain elements



In EN 71-3: 2013(E) method, it requires using 0.45 or 0.22um syringe filter to filter samples. But some particles can pass 0.45 or 0.22 filters (Such as feculent solution and colored filtrate). It may cause incorrect test value of migration in some circumstance. Because test result includes not only migratory elements, but also elements chemisorption to particle. If this condition occurs, using pore size 0.02um syringe filter to re-filter samples. If it cannot be re-filtered, repeat migration process and the separation, and finally filter again with pore size 0.02um syringe filter.

For there are few manufacturers can provide 0.02um syringe filter in current market, even if available, the price is very expensive. To meet customers needs and reduce their cost, Shanghai ANPEL provides pore size 0.02um syringe filter with great quality and competitive price.

- Made in Cleanroom
- Strict Quality Control
- Practical Packing
- Undergo many quality control tests

Order Info

Cat. No.	Description	Specification	Brand
2.CF7103.0001	PRECLEAN Syringe Filter, PVDF membrane (Hydrophilic)	13mm*0.02um, nature, 100pcs / box	CNW

Other relative consumables recommond

Cat. No.	Description	Specification	Brand	Remark
2.CA7355.0001	CNW Poly-sery PA SPE column	1g/6mL, 30 pcs / box	CNW	Detect hexavalent chromium in leather
2.CA0855.0001	CNWBOND HC-C18 SPE column	1g/6mL, 30 pcs / box	CNW	
2.CA3554.0001	Poly-Sery PSD SPE Cartridge	500mg/6mL, 30 pcs / box	CNW	
2.CF2201.0001	Nylon Syringe Filter (white)	25mm*0.45um, 100 pcs / box	ANPEL	
2.CF6201.0001	Syringe Filter, PTFE membrane(Hydrophilic)(pink)	25mm*0.45um, 100 pcs / box	ANPEL	

Hydrophilic PVDF 0.02µm Syringe Filter COA Template

Certificate of Analysis

PRECLEANTM 13 mm Syringe Filter, PVDF membrane (Hydrophilic), 0.02 µm, natural
Art Number: 2.CF7103.0001
Lot Number: H4630020

Syringe Filter Characteristics			
Properties	Results	Properties	Results
Membrane material	PVDF	Pore Size (µm)	0.02
Wettability	Hydrophilic	Filtration Area (cm ²)	0.83
Housing Material	Polypropylene	Filtration Volume (mL)	<10
Inlet/Outlet	Female luer lock/Male luer slip	Hold-Up Volume (µL)	<25
Characteristic Test Results			
Thickness (µm)	213	Bubble Point (MPa)/ Test Liquid	0.26/ Ethanol
Maximum Operating Pressure (psi)	<90	Housing Material Cleanliness Test	Pass

Chromatography Test

HPLC Conditions:

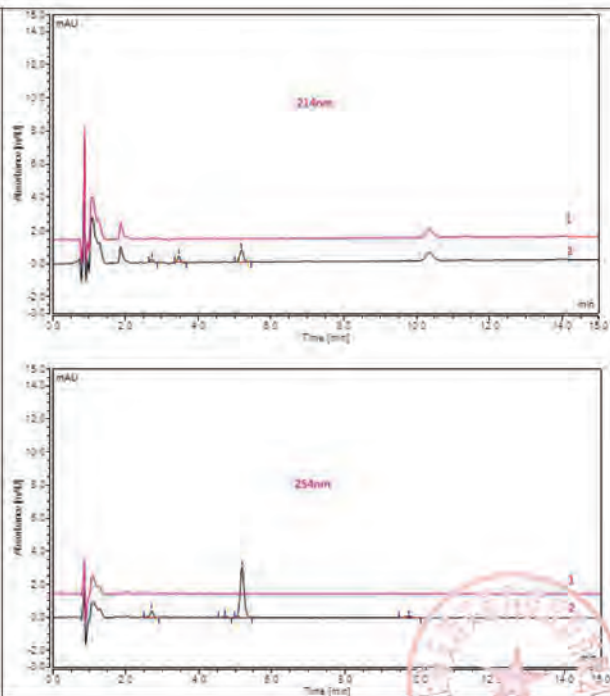
Sample: 2 mL Methanol Water filtered
 Column: Athena C18, 4.6×150 mm
 Flow Rate: 1.5 mL/min
 Detector: UV 254 and 214 nm
 Mobile Phase: 70:30 (v/v) Acetonitrile/Water

Temperature: 40.0°C

Injection Volume: 10 µL

Chromatographic Identification

1. Methanol blank
2. Methanol filtered



[Expiration Date]: Use before 2020/04/09

应恩萍
 PREPARATION

雷丹
 REVIEW

高岩新
 APPROVAL

2017/04/10
 SIGNATURE DATE

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Disposable Rubber-free Syringes

Rubber- seal in the traditional syringe' s piston may dissolve when contact chemical reagent, and usually traditional syringe may add silicone or lubricant to keep plunger move smooth, then extractable materials may leach into the sample during sample preparation. To ensure the industrial and laboratory analysis use, ANPEL rubber-free syringes contain no silicone, lubricant or chloride, to avoid the potential contamination to samples.

Can be connected with syringe filters, widely used in sample preparation during HPLC, GC, and Elemental analysis.

Features and Benefits

- ☒ The barrels of syringes are made of inert polypropylene material, and plungers are made of polyethylene, which will never be broken and have good chemical resistance.
- ☒ The plunger fits the interior of barrel very well to ensure the smooth flowing of liquid without any leakage.
- ☒ Sufficiently transparent barrel allows easy measurement of the volume contained in the syringe, graduated scale on the barrel is easy to read.
- ☒ Without needles, non-sterilized, single Use Only. Can be connected with syringe filters, widely used in sample preparation during HPLC, GC, and Elemental analysis.
- ☒ Multiple specifications are available with 2mL, 5mL, 10mL and 20mL as normally used to meet different customer needs.

ANPEL laboratorial needleless syringes

Description	Packaging	Cat. No.
2mL laboratorial needleless syringes	100 pieces per bag	QBAA-002012
2mL laboratorial needleless syringes unassembled	100 pieces per bag	QBAA-002012S-100
5mL laboratorial needleless syringes	100 pieces per bag	QBAA-002013
5mL laboratorial needleless syringes unassembled	100 pieces per bag	QBAA-002013S-100
10mL laboratorial needleless syringes	50 pieces per bag	QBAA-002014-50
20ml laboratorial needleless syringes	25 pieces per bag	QBAA-002015

Different syringe background test

The background interference for ANPEL laboratorial needleless syringes without the black rubber is little than the syringes with black rubber.

chromatographic conditions:

Column: AthenaC18,5um,4.6mm*150mm
Flow rate: 1.5mL/min

Mobile phase: 70%Acetonitrile:30%water
Detector: 254 nm
Injection volume: 10uL
Temperature: 40°C

Chromatogram

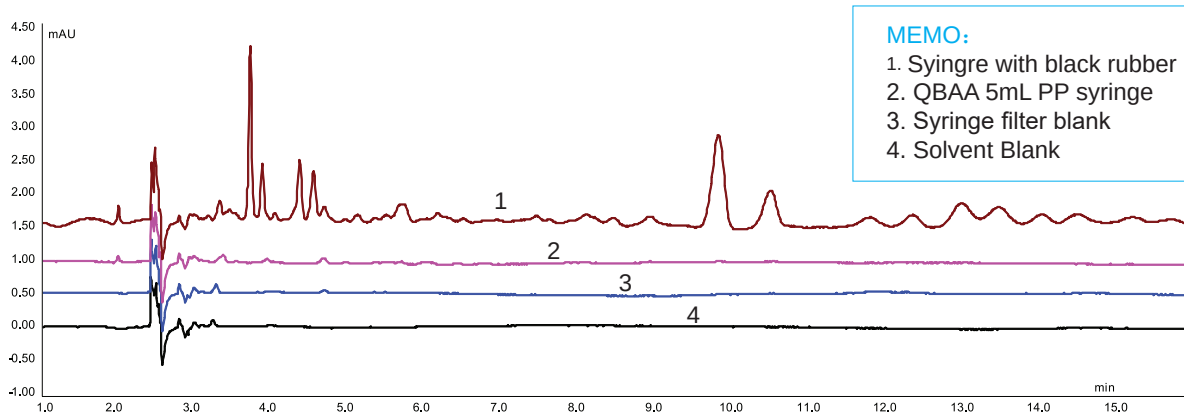


Figure 1: Background interference test between ANPEL syringe and other brand with black rubber (solvent: methanol)

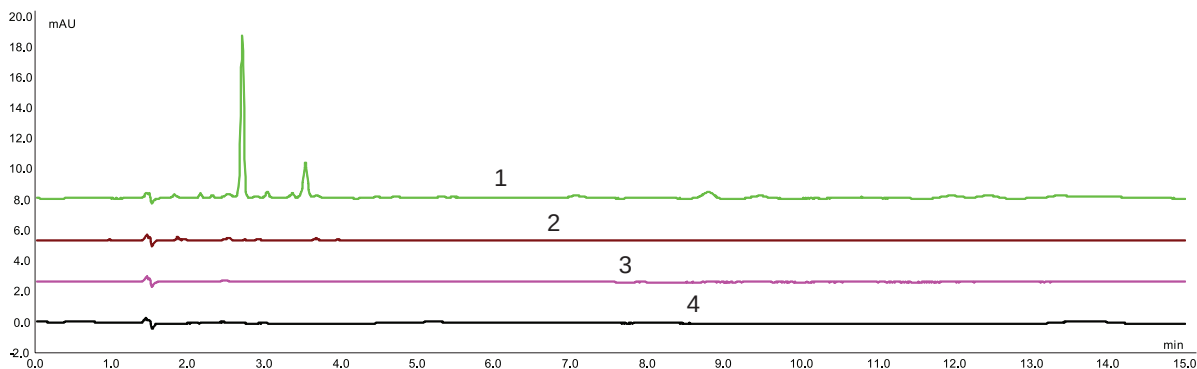


Figure 1: Background interference test between ANPEL syringe and other brand with black rubber (solvent: acetonitrile)

Replaceable membrane syringe filters

Description	Diameter	Cat. No.
25mm Replaceable membrane syringe filters (made from PP)	25mm	SCBB-321
13mm Replaceable membrane syringe filters (made from PP)	13mm	SCBB-322
50mm Replaceable membrane syringe filters (made from PP)	50mm	SCBB-323



Filter membrane

CNW

High-quality membrane products, Through bubble point test, background interference test, flow rate or air flux testing etc.

Attentions

1. When using the double layer membrane, ensure positive on the up and opposite down. The lining form have the effect of support, so if turn it the lining form can not give the support this will caused the membrane easy to broken, can not proof pressure.

2. If you use the Organic phase membrane to filter water, please using ethanol or other organic solvents to madefaction the membrane, then after clean the membrane with clean water you can use it.



Sampling tweezers include
Make it easy to use for you

We insert one green paper between
each membrane to avoid static.

Description	Packaging	Cat. No.
Polyethersulfone(PES) Membrane	47mm, 0.45 μ m, 100 pcs per box	2.CM0111.0001
	47mm, 0.22 μ m, 100 pcs per box	2.CM0112.0001
Nylon Membrane	47mm, 0.45 μ m, 100 pcs per box	2.CM0211.0001
	47mm, 0.22 μ m, 100 pcs per box	2.CM0212.0001
Hydrophobic Polytetrafluoroethylene(PTFE) Membrane	47mm, 0.45 μ m, 50 pcs per box	2.CM0311.0001
	47mm, 0.22 μ m, 50 pcs per box	2.CM0312.0001
Hydrophobic polyvinylidene fluoride(PVDF) Membrane	47mm, 0.45 μ m, 50 pcs per box	2.CM0411.0001
	47mm, 0.22 μ m, 50 pcs per box	2.CM0412.0001
Hydrophilic Polytetrafluoroethylene(PTFE) Membrane	47mm, 0.45 μ m, 50 pcs per box	2.CM0611.0001
	47mm, 0.22 μ m, 50 pcs per box	2.CM0612.0001
Hydrophilic polyvinylidene fluoride(PVDF) Membrane	47mm, 0.45 μ m, 50 pcs per box	2.CM0711.0001
	47mm, 0.22 μ m, 50 pcs per box	2.CM0712.0001
Mixed Cellulose Ester(MCE) Membrane	47mm, 0.45 μ m, 100 pcs per box	2.CM0811.0001
	47mm, 0.22 μ m, 100 pcs per box	2.CM0812.0001

Other products

No support layer of membrane products, thin and fast flow. membrane with strong static, so when you pickup please prevent two film overlapping. If there is a wrinkle at the membrane surface, as long as it don't be broken, shall not affect the effect.

Description	Packaging	Cat. No.
Organic phase membrane	13mmx0.22um, 200 pcs per box	SCBB-220
	13mm*0.45um, 200 pcs per box	SCBB-213
	25mm*0.45um, 200 pcs per box	SCBB-212
	50mm*0.22um, 100 pcs per box	SCBB-210
	50mm*0.45um, 100 pcs per box	SCBB-211
Water phase membrane	25mm*0.22um, 200 pcs per box	SCBB-236
	50mm*0.22um, 100 pcs per box	SCBB-207
	50mm*0.45um, 100 pcs per box	SCBB-206
Nylon membrane	50mm*0.22um, 100 pcs per box	SCBB-246
	50mm*0.45um, 100 pcs per box	SCBB-225



CNW New Mobile Phase Filter

CNW New Mobile Phase Filter is designed to solvent rapid filtration and degassing, suitable for filtering and degassing of the HPLC mobile phase solvent, Can prolong the service life of instrument and the chromatographic column, improve the detection accuracy; Used in gravimetric analysis, trace analysis, trace analysis, colloid separation and sterile in the laboratory.

Compare to traditional Solvent Filter , the new design has solved following questions:

1. Larger filter cup capacity, avoid multiple adding;
2. Removes clamp, avoid potential leaking;
3. Substitute Frosted Seal to Thread fastening, avoid fusion after long time usage.
4. Substitute Quartz sand core to PTFE filter plate, avoid hard cleaning.
5. Substitute Conical flask to GL45 ISO Bottles, avoid solvent transfer after filter.



Description	Packaging	Cat. No.
HPLC new mobile phase Filter [include 1000mL filter cup, exclude GL45 ISO Bottle]	1 set	2.PSF010.0001

ANPEL Vacuum Filter Holder

Vacuum Filter Holder Is designed to solvent rapid filtration and degassing, suitable for filtering and degassing of the HPLC mobile phase solvent, Can prolong the service life of instrument and the chromatographic column, improve the detection accuracy,Used in gravimetric analysis, trace analysis, trace analysis, colloid separation and sterile in the laboratory.



Description	Packaging	Cat. No.
1000mL Vacuum Filter Holder	1 set	SCAA-SF1000
300mL Filter Upper Cups	1 piece	SCAA-SF1000-1
1000mL Solvent filter cores	1 piece	SCAA-SF1000-2
1000mLfilter flask	1 piece	SCAA-SF1000-3



Q&A

Filters, membranes validity and COA

The filtration products do not have accurate validity but ANPEL would have recommendation for working life. ANPEL focus on doing stability test for all specifications of relative filtration product and now it was confirmed that the longest stability could go over 3 years, which ensures internal standard in good level. Hence, accordingly, with storage condition of dry, sealed and non-contaminate, the validity of products would go at least 3 years.

Filters, membranes do not provide COA, product code and case number are provided.

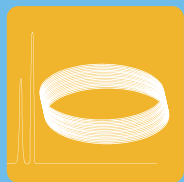
Sterilization

ANPEL right now does not provide any sterilized products. In general, filters or membranes would go sterilization process with rays or ethylene oxide with 121 degrees in 15 to 30 minutes, not more than 30 minutes. When in condition of sterilization, avoid contacting steam vertically, in case of damages in back side of membrane caused by negative pressure of congealed steam.

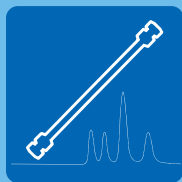
Common problems and solutions.

Problem	Probable cause	Solution
solvent can not pass the membrane	Selection error, not applicable	1、Choose organic phase membrane for organic solution 2、Choose water phase membrane for aqueous solution
After filtration solvent remains murky	1、The pore size for membrane is not appropriate 2、Emulsion, it seems that is not transparent	1、Change the correct pore size membrane 2、If it is micellar solution, there is no complete miscibility, there is no particulate matter, if want to transparent solution should choose appropriate solvent to dilution
membrane broken	1、Material of membrane cannot tolerate the sample solvent, were dissolved 2、The pressure surpass the designed	1、Change correct material of membrane, please check the condition also include operate temperature, pressure etc. 2、Confirm the correct operate pressure, especially for using the syringe filter with small diameter(design flux no more than 5mL), pressure no more than 75psi. or try the syringe filters with pre-layer
Low flow rate	1、High particle content in the samples 2、The viscosity is too large of the sample 3、The diameter of the syringe filter is too small	1、High speed centrifugal, remove the part of the particulate matter or try the syringe filters with pre-layer 2、Select the appropriate solvent dilution to the samples 3、Using a larger diameter of filter, the effective area increase flux From the perspective of the security, if the membrane pore size was blocked and results in the decrease of flow velocity, it is recommended to replace a filter, rather than increasing pressure.
Adsorption of the target	1、Membrane adsorption target compound	1、Change the membrane to ensure it is low adsorption or no adsorption the target compound. For example, If analysis of proteins and DNA we suggest using PES or PVDF not Nylon membrane. 2、If filter pigment samples, please do not use Nylon membrane. 3、If doubt membrane has adsorption to the samples, please filter the a known concentrations standard, then analysis by instrument to contrast.
Dissolve out	1、Chemical resistance of the membrane is limited, some components by solvent dissolving 2、Some pollutant been introduced during manufacture or packing etc. 3、Using the syringe with black rubber	1、Dissolve the extent and the solvent, temperature, pressure, and soak time, so try to change these Condition to reduce the dissolve. if confirm the material of membrane can not tolerate, please directly change to the correct material. 2、Please using the sample solvents do the precleaning. If the volume of samples is enough, can be directly given to the front -5mL 3、Change to the syringe without black rubber

[illegible]



GC



HPLC



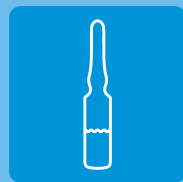
SPE



Sample Vials



Chemical Reagents



Reference Standards



Laboratory Equipments



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ANPEL Laboratory Technologies (Shanghai) Inc.



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