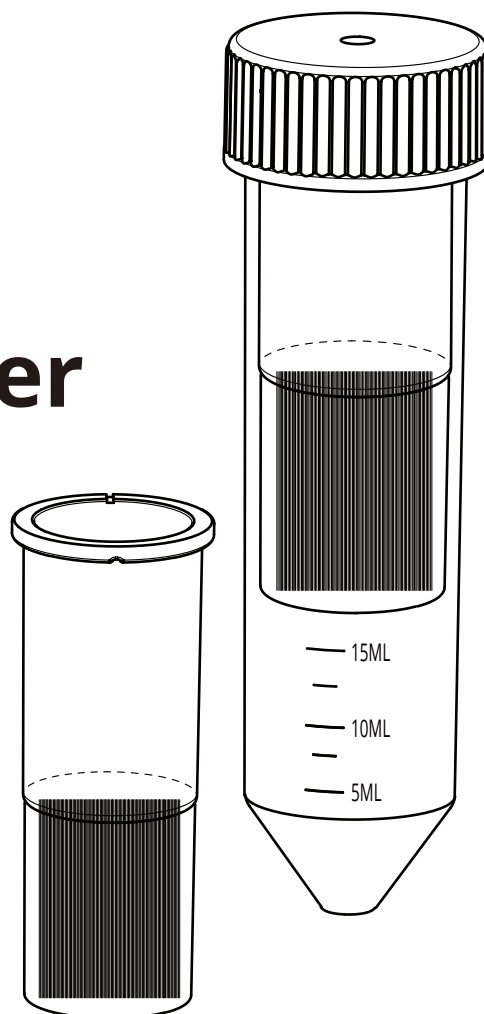




15mL

Ultra Filtration Centrifugal Filter



15ml Ultra Filtration Centrifugal Filter

15ml Ultra-filtration Centrifugal Filter can quickly and efficiently concentrate and purify up biological samples up to 15ml.

The unique vertical design and maximized filtration area provide rapid sample processing and high sample recovery (usually greater than 90% of the dilute initial solution), keeping a mild concentrated environment to maintain the activity and conformation of biological samples.

The vertical design minimizes solute polarization and subsequent membrane fouling, the physical filter stop points in the filter unit can prevent over spinning of the filter from drying out the sample and causing sample loss.

A variety of ultra-filtration molecular weight cut-off (MWCO) filters utilize PES membranes, which have very low protein and nucleic acid binding.

Ultra-filtration centrifugal filters are ideal for concentrating small peptides, oligonucleotides, nucleic acids, enzymes, antibodies, and other similar macro molecules.

Features

- Large effective filtration area and vertical structure design make the fast filtration flow rate and high sample recovery rate;
- Low bio-molecular binding rate, high chemical compatibility;
- Anti-filter lock design to avoid sample damaged by excessive centrifugation;
- Variety of pore sizes meet the requirements of different molecular weight cut-offs;
- Efficient production and delivery by self-owned factories, to meet the immediate needs of scientific research.

Application

- Concentrate and desalt proteins, nucleic acids
- Buffer exchange or desalting of chromatographic components
- Harvest bio-molecules from culture media
- Virus concentration or isolation
- Coarse separation of bio-molecular mixtures
- Debris and particle removal from cell lysates
- Removal of primers, adapters or molecular markers from the reaction mixture

Specification

Material & Size

Filter	PC Material
Membrane	PES (Polyethersulfone)
Filtrate tube	PP material
Filtrate cap and liner	PP material
Filters in test tubes (capped)	Overall length 117mm, Diameter 31mm
Filter	Length: 75 mm, Diameter:28 mm

Capacity:

Effective filter area	7.2 cm ²
Maximum sample volume	15ml
Maximum filtrate volume	17ml
Retention volume	20μl
Locking volume	300μl
Operating temperature	0-40°C
pH range	1-14
Maximum centrifugal force	Swing bucket rotor 4000x g
	Fixed angle rotor 5000x g

Centrifuge:

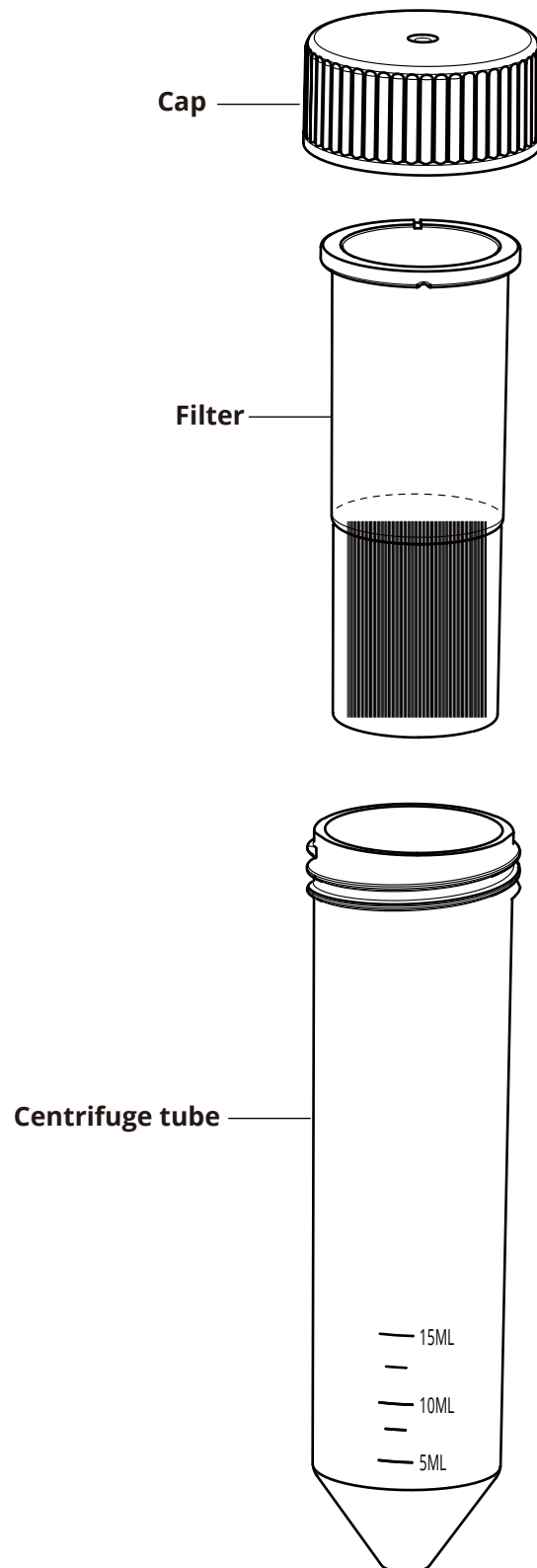
Fits centrifuges that accept standard 50ml conical tubes

Disinfection and sterilization:

This product is non-sterile and can be sterilized by filtering 70% ethanol through the equipment before use.

Structure

The centrifugal filter includes a cap, a filter and a centrifuge tube.



User Instructions

The PES membrane of this centrifugal filter contains a small amount of glycerol and protective agent. In order to avoid interference with the analysis, 15 ml of deionized water or buffer solution can be filtered through the membrane before use and repeated to remove them. If further flushing is required, start with 0.05N NaOH and repeat the process.

Once the centrifugal filter is wet, it needs to be kept wet until it is used.

Use steps:

1. Take off the cap, transfer sample no more than 15mL into the chamber, put the cap on to prevent evaporation during centrifugation.
2. Place the filter in a centrifuge. Always balance the rotor with another centrifugal filter containing an equal sample volume.
3. The time required to rotate the device with the recommended force: Ultra-filtration: Spin at 1,000 to 5,000 x g, typically for 20 to 60 minutes, to achieve the ideal concentrated volume. It is recommended to determine the rotation time and gravity for each application.
4. To recovery the concentrated solutes, insert a pipette into the bottom of the filter unit and draw the sample by rocking from side to side to ensure complete recovery. The ultra-filtrate can be stored in a centrifuge tube.

Note: To achieve ideal recovery, please remove the concentrated sample immediately after centrifugation.

Non-specific adsorption

PES membrane has low bio-molecular binding and excellent biological and chemical resistance. Adsorption of equipment components is of particular concern when purifying proteins at the micro-gram or nanogram level. Even with the low-adsorption plastic in this centrifugal filter, some adsorption of particularly "sticky" proteins and bio-molecules may occur. Pre-treatment of the centrifugal filter can reduce non-specific Adsorption of the filter.

- Fill the sample container with 15mL of 10% glycerol.
- Soak overnight at room temperature.
- Rinse the device with deionized water.
- Fill the sample container with 15mL of deionized water and swirl to repeat.

Desalination or percolation

- Concentrate the sample at least ten-fold (eg, 15ml to 1.5ml).
- Reconstitute with exchange buffer and reconcentrate ten-fold.
- Repeat this procedure 3 to 5 times to remove 95 to 99% of the salt or buffer.

Precautions

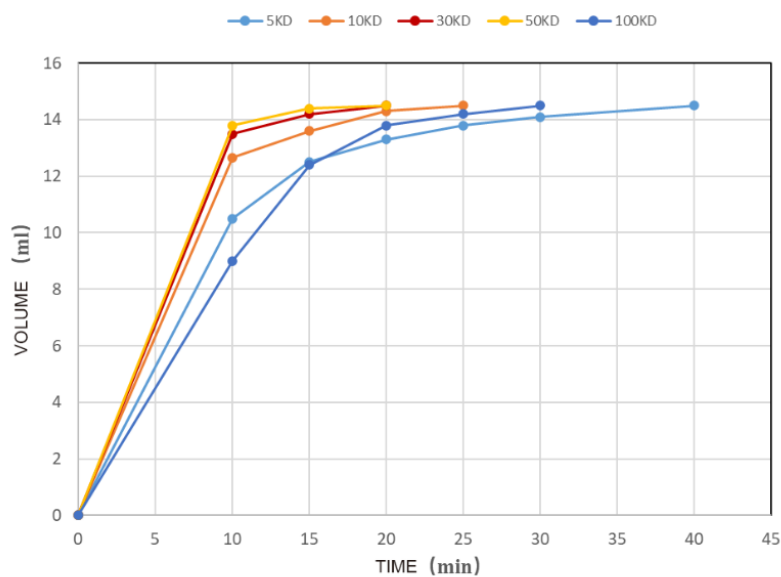
- The 15ml ultra-filtration centrifugal filter is non sterilized disposable product. If it is damaged, please do not use it.
- The 15ml ultra-filtration centrifugal filter is only for research use, not for in vitro diagnosis.
- To ensure the suitability of the sample, it is recommended to conduct a pre experiment for the first use to test the recovery and retention efficiency.

Performance

Filtration speed:

Factors affecting the filtration rate include the concentration of the sample, initial volume, chemical properties of the solute, relative centrifugal force, angle of the centrifuge rotor, type of membrane, effective filtration area and temperature, etc.

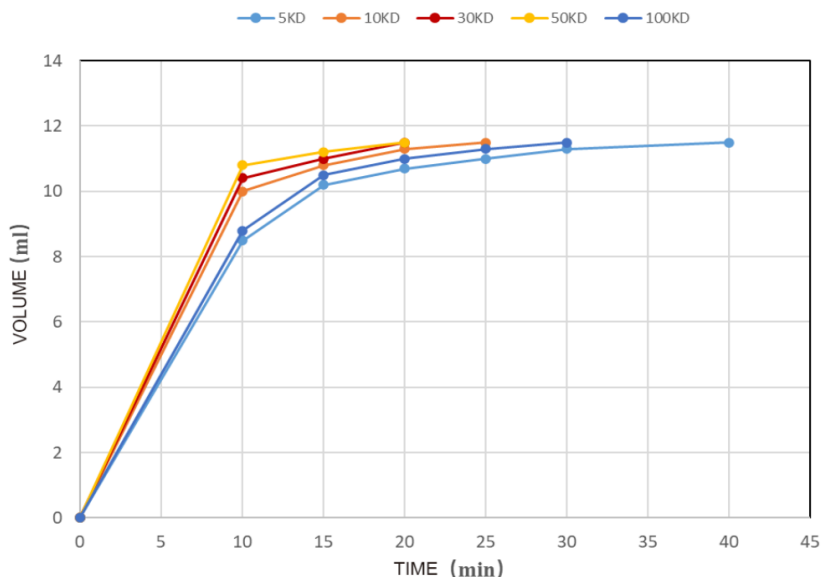
Figure 1. The relationship between filtrate volume and centrifugation time (horizontal rotor)



Centrifugal force: 4000xg, 8°C, initial volume 15ml.

Ultra-filtration centrifuged samples: Cyt C(0.25mg/ml) for 5KD
Ovalbumin(1mg/ml) for 10KD,
BSA(1mg/ml) for 30/50 KD
IgG(1mg/ml) for 100KD

Figure 2. The relationship between filtrate volume and centrifugation time (Fixed angle rotor)



Centrifugal force: 5000xg, 8°C, initial volume 12mL.

Ultra-filtration centrifuged samples: Cyt C(0.25mg/ml) for 5KD
 Ovalbumin(1mg/ml)for 10KD,
 BSA(1mg/ml) for 30/50 KD
 IgG(1mg/ml) for 100KD

Recovery rate

The retention capacity of a 15ml ultra-filtration centrifugal filter membrane is described as the Molecular Weight Cut Off (MWCO). For solute molecular weights close to MWCO, only part of it may be retained.

To obtain the best retention characteristics, please use a MWCO filter membrane that is three times or more smaller than the molecular weight of the solute.

Protein concentration	Protein molecular weight	Centrifuge tube MWCO	Recovery rate (horizontal rotor)	Recovery rate (Fixed angle rotor)	Centrifugation time
Cyt C(0.25mg/ml)	12,400	5KD	>90%	>90%	30 min
OVA(1mg/ml)	45,000	10KD	>90%	>90%	30 min
BSA(1mg/ml)	67,000	30KD	>90%	>90%	30 min
IgG(1mg/ml)	156,000	50KD	>85%	>85%	30 min
IgG(1mg/ml)	156,000	100KD	>80%	>80%	30 min

Chemical Compatibility

Centrifugal filters are suitable for biological liquids and aqueous solutions. Before use, check the chemical compatibility of the sample with the device.

Chemical Compatibility of Ultrafiltration Centrifugal Filters.

Acid	Concentration
amido-sulfonic acid	≤5%
formic acid	≤5%
acetic acid	≤25%
hydrochloric acid	≤1M
sulphuric acid	≤3%
hydrogen nitrate	≤10%
lactic acid	≤5%
orthophosphoric acid	≤30%
Tri-fluoroacetic acid (TFA)	≤10%
trichloroacetic acid (TCA)	?

Alkali	Concentration
sodium hydrate	≤2M
ammonium hydroxide	?

Alcohol	Concentration
methyl alcohol	
ethylalcohol	
isopropanol	≤70%
n-butyl alcohol	≤70%

Detergent	Concentration
Triton® X-100 surfactant	≤0.1%
Tween® 20 surfactant	≤0.1%
sodium lauryl sulfate (SDS)	≤0.1M
Nonidet™-P 40 surfactant	≤2%
Alconox® abstergent	≤1%
CHAPS abstergent	≤0.1%
Lubrol® PX abstergent	≤0.1%
Tergazyme® abstergent	≤1%
sodium deoxycholate (SDC)	≤5%

Organic solvent	Concentration
benzene	Not recommended
acetone	≤10%
acetonitrile	≤10%
methylbenzene	Not recommended
formaldehyde	≤30%
dimethylsulfoxide (DMSO)	≤5%
acetic ether	Not recommended
pyridine	Not recommended
trichlormethane	Not recommended
perchlormethane	Not recommended
tetramethylene oxide	Not recommended

Others	Concentration
phenol	?
propanetriol	≤70%
dithiothreitol (DTT)	≤0.1M
diethyl oxydiformalate	≤0.2%
polyethylene glycol	≤10%
phosphate buffer (pH8.2)	≤1M
ammonia sulfate	saturated
iminazole	≤500mM
carbamide	≤8M
mercaptoethanol	≤0.01M
Trihydroxymethylthane buffer (pH 8.2)	≤1M
sodium carbonate	≤20%
guanidine hydrochloride	≤6M

ORDER INFORMATION

Initial volume	Locking volume	Description	Category Number	MWCO	Qty/pk
15ml	300µl	15ml Ultra-filtration centrifugal filter	6-0160	5kD	12
			6-0161	10kD	12
			6-0162	30kD	12
			6-0163	50kD	12
			6-0164	100kD	12