

Centricon® Plus-70

Centrifugal Filter Devices

MILLIPORE

FOR CONCENTRATION AND PURIFICATION
OF BIOLOGICAL SAMPLES

For Research Use Only.
Not for Use in Diagnostic Procedures.

PR02353, Rev. A, 01/07

Product Overview

The Centricon Plus-70 centrifugal filter is a disposable, single-use device designed for rapid processing of aqueous biological solutions in volumes ranging from 15 to 70 mL. It is compatible with swinging-bucket centrifuges only. The Centricon Plus-70 device can concentrate most 70 mL solutions down to 350 μ L in just 25 minutes (some solutions may take slightly longer).

Usage Guidelines

For best results be sure to follow the guidelines below.

■ Flow Rate

Flow rate is affected by several parameters, including the membrane nominal molecular weight limit (NMWL), solute MW and concentration, viscosity, centrifugal force, and temperature. For maximum recovery, select a UF membrane with a NMWL approximately three times lower than the molecular weight of your target molecule. Expect longer spin times for starting solutions with over 5% solids. Flow rates at 4 °C are typically 1.5 times slower than those at 25 °C. Viscous solutions, such as 50% glycerol, will take up to five times longer to concentrate than very dilute solutions.

■ Prerinsing

Centricon Plus membranes contain trace amounts of glycerol, used as a humectant. To flush glycerol away, spin 70 mL of buffer solution or Milli-Q® water through filter for 5 minutes. To remove all water and buffer, an invert spin is required. Do not allow the membrane in filter device to dry out once wet. If the device is not being used immediately after prerinsing, leave fluid on the membrane until the device is used.

■ Desalting or Buffer Exchange

Concentrate a 70 mL sample to 350 μ L. Discard filtrate and reconstitute the sample back to 70 mL by adding the needed buffer. Concentrate again to 350 μ L. Repeat this process until the concentration of the contaminating solutes is reduced. Typically, one wash cycle will remove >99% of the initial salt content; two cycles will remove >99.9% of the salt.

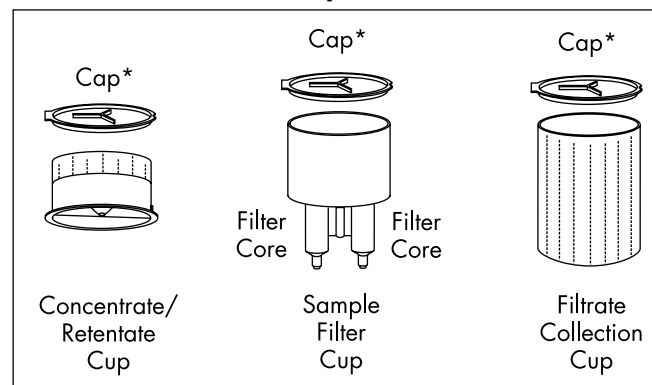
■ Sanitization

To sanitize the device, rinse the desired components with a 70% ethanol solution.

■ Chemical Compatibility

Use only with biological fluids and aqueous solutions. See your laboratory products catalogue or visit the Millipore web site at www.millipore.com for more information.

Centricon Plus-70 Components



* Cap fits the Concentrate/Retentate Cup, Sample Filter Cup and Filtrate Collection Cup, as shown.

Sample Concentration

1. Add solution to sample filter cup (to a maximum of 70 mL); seal with supplied cap. Place sample filter cup into filtrate collection cup.

2. Place Centricon Plus-70 assembly in centrifuge bucket.

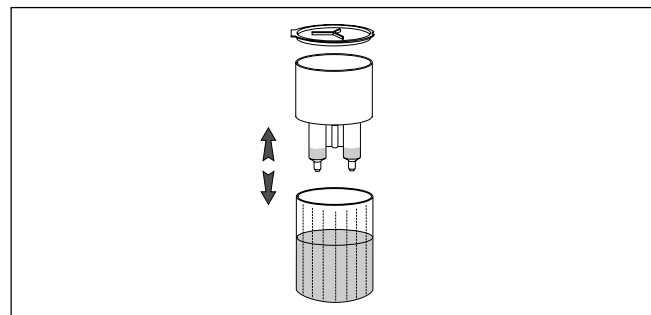
CAUTION: Before proceeding, check centrifuge clearance by manually moving bucket to its full-swing position. Counterbalance centrifuge with a second bucket containing a second Centricon Plus-70 unit and an equal volume of sample or water.

3. Spin at up to 3,500 \times g until desired concentration is achieved. A typical spin time is 15–20 minutes, depending on solute type and concentration. See accompanying flow rate charts for details.

NOTE: If the centrifuge vibrates excessively, stop and rebalance it.

4. After the concentration step, remove Centricon Plus-70 unit from centrifuge and separate the sample filter cup from the filtrate collection cup. If retaining the filtrate, cap filtrate collection cup and store as appropriate.

NOTE: When pouring solution out of the filtrate collection cup, ensure that the ribs inside the cup do not obstruct the flow of liquid.



Retentate Recovery

If the amount of retentate remaining in the sample filter cup is above the top of the filter cores, decant to a suitable container before proceeding. Be sure to combine this retentate with the retentate removed in step 4 below.

1. Turn the concentrate/retentate cup upside down and place on top of the sample filter cup.

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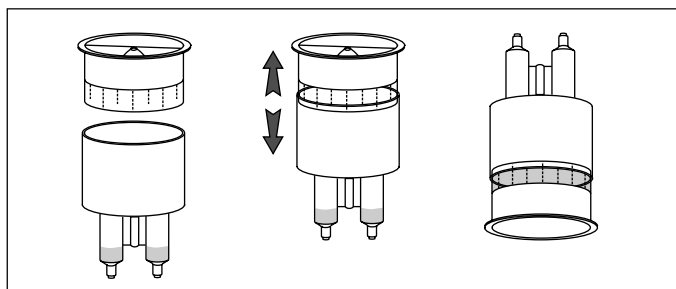
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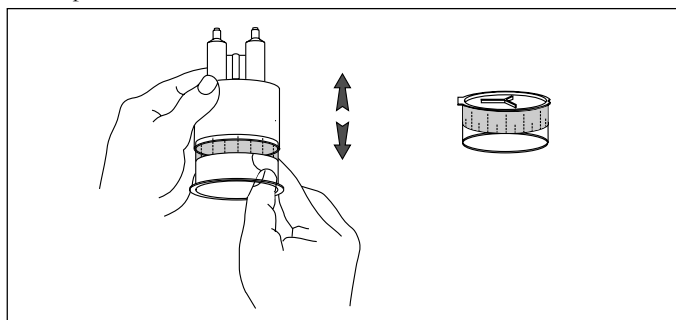
Retentate Recovery, continued

- Carefully invert unit, place in centrifuge, and counterbalance with a similar device. Spin at no more than $1,000 \times g$ for up to 2 minutes.

CAUTION: Higher spin force can result in sample loss.



- Remove the retentate cup containing the concentrated sample from the sample filter cup. Keep the filter cup inverted during this process.



- Remove the sample with a pipette or cap the retentate cup and store sample for later use.

NOTE: Samples with high starting protein concentration may be subject to recovery losses due to protein crystallization (protein dependent). This results from the high throughput and concentration factors offered by Centricon Plus-70 devices.

Specifications

- Maximum volume capacity: 70 mL
- Minimum final concentrate volume: 350 μ L
- Maximum centrifugal force: $3,500 \times g$ for concentration spin;
 $1,000 \times g$ for invert spin
- Active membrane surface area: 19.0 cm^2
- Hold-up volume of membrane and support: 75 μ L

Dimensions:

- Diameter: 60 mm; Length: 121 mm
- Rotor type: only swinging-bucket capable of handling 250 mL bottles

Materials of construction:

- Filtrate collection cup, sample filter cup, concentrate/retentate cup and cap: polypropylene
- Membrane composition:
 Ultracel[®] PL membrane - regenerated cellulose
 Biomax[®] membrane - high-flow polyethersulfone

Ordering Information

Centricon Plus-70 centrifugal filters are available in packages of 2 or 8 units. Please order by catalogue number from the chart below. For additional centrifugal products, go to www.millipore.com/centrifugal.

Centricon Plus-70 Centrifugal Filters

NMWL	Membrane	8/pk
5K	Biomax	UFC7 005 08
10K	Ultracel PL	UFC7 010 08
30K	Ultracel PL	UFC7 030 08
100K	Ultracel PL	UFC7 100 08

Device Performance

Below are typical retentate recovery and flow rate data for the Centricon Plus-70 centrifugal filter devices.

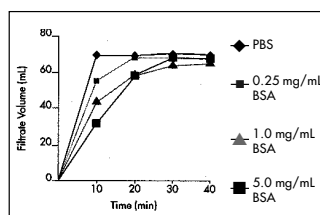
Typical Recoveries

	MW	5	10	30	100
Cytochrome C (0.25 mg/mL)	12.4 kD	—	94%	—	—
Bovine Serum Albumin (1 mg/mL)	67 kD	85%	95%	96%	84%
Goat IgG (1 mg/mL)	156 kD	—	94%	91%	91%

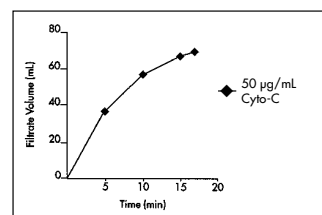
Typical Flow Rates at 3,500 $\times g$ (Filtrate Volume vs. Spin Time)

A typical spin time is 15–20 minutes, depending on solute type and concentration.

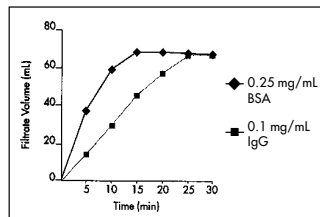
Biomax-5 Membrane



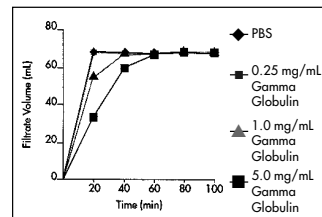
Ultracel PL-10 Membrane



Ultracel PL-30 Membrane

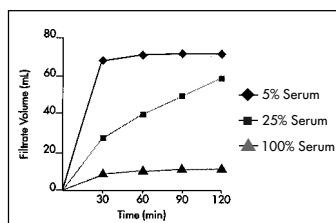


Ultracel PL-100 Membrane



Concentration of Serum Proteins at 3,500 $\times g$ (Filtrate Volume vs. Spin Time)

Ultracel PL-100 Membrane



Technical Assistance

For more information, contact the Millipore office nearest you. In the U.S., call **1-800-MILLIPORE** (1-800-645-5476). Outside the U.S., see your Millipore catalogue for the phone number of the office nearest you or go to our web site at www.millipore.com/offices for up-to-date worldwide contact information. You can also visit the tech service page on our web site at www.millipore.com/techservice.

Warranty

Centricon Plus-70 centrifugal filter devices are covered by Millipore's standard limited warranty, as set forth in Millipore's Bioscience Catalogue.

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