Corning® Spin-X® UF 500 µL Concentrators

CORNING

Technical Data and Operating Instructions

For *in vitro* use only.

Introduction

Spin-X® UF concentrators are disposable, single use only ultrafiltration devices with polyethersulfone membranes (PES) for the concentration and/or purification of biological samples. Spin-X UF 500 concentrators are suitable for sample volumes of 100 to 500 µL. Thevertical membrane design and thin channel filtration chamber minimizes membrane fouling and provides high speed concentrations, even with particle laden solutions.

Storage Conditions and Shelf Life

Spin-X UF concentrators should be stored at room temperature. The devices should be used before the expiration date printed on the box.

Chemical Compatibility

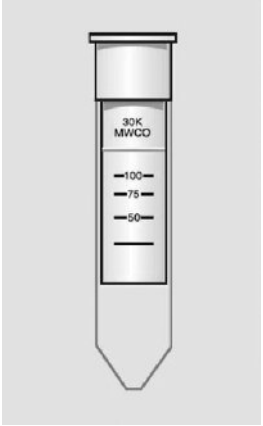
Spin-X UF concentrators are designed for use with biological fluids and aqueous solutions. For chemical compatibility details, refer to Table 3 (page 5).

Centrifugal Operation

Spin-X UF 500 concentrators can be used in a benchtop fixed angle rotor, accepting 2.2 mL centrifuge tubes. In a single spin, solutions can be concentrated approximately 100-fold.

Required Equipment

1. Centrifuge with fixed angle rotor (minimum 40°) that can fit 2.2 mL (11 mm diameter) conical bottom tubes.
2. Fixed or variable volume pipettors with gel loading tips are recommended for sample addition and removal.



Corning Spin-X UF 500 – 100 to 500 µL capacity

Operation

1. Select the most appropriate membrane cut-off for your sample. For maximum recovery select a molecular weight cut off (MWCO) at least 50% smaller than the molecular size of the species of interest.
2. Fill concentrator with up to a maximum volume of 500 µL as shown in Table 1 (Ensure lid is fully seated).
3. Insert assembled concentrator into a centrifuge with a fixed angle rotor. Minimum rotor angle is 40º. Angle concentrator so that the printed window faces upwards/ outwards.
4. Centrifuge at speeds up to 15,000 xg.
5. Once the desired concentration is achieved, remove assembly and recover sample from the bottom of the concentrate pocket with a pipettor and gel loading tip. See Table 2 (page 4) for a guide to concentration times. The filtrate tube can be sealed for storage.

Desalting/Buffer Exchange

1. Concentrate sample to desired level.
2. Empty filtrate container.
3. Refill concentrator with an appropriate solvent.
4. Concentrate the sample again and repeat the process until the concentration of the contaminating microsolute is sufficiently reduced. Typically, 3 wash cycles will remove 99% of initial salt content.

Helpful Hints

1. Flow Rate

Filtration rate is affected by several parameters, including MWCO, porosity, sample concentration, viscosity, centrifugal force and temperature. Expect significantly longer spin times for starting solutions with over 5% solids. When operating at 4°C, flow rates are approximately 1.5 times slower than at 25°C. Viscous solutions such as 50% glycerin will take up to 5 times longer to concentrate than samples in a predominantly buffer solution.

2. Prerinsing

Membranes fitted to Spin-X UF concentrators contain trace amounts of glycerin and sodium azide. Should these interfere with analysis they can be removed by rinsing fill volume of buffer solution or deionized water through the concentrator. Decant filtrate and concentrate before processing sample solution. If you do not want to use the pre-rinsed device immediately, store it in the refrigerator with buffer or water covering the membrane surface. Please do not allow the membrane to dry out.

3. Sterilization of Polyethersulfone Membranes

Polyethersulfone membranes should not be autoclaved as high temperatures will substantially increase membrane MWCO. To sterilize, use a 70% ethanol solution or sterilizing gas mixture.

Technical Specifications

Table 1. Technical Properties

	Spin-X® UF 500
Concentrator Capacity	
Swing bucket rotor	Do not use
Fixed angle rotor	500 µL
Minimum rotor angle	40°
Dimensions	
Total length	50 mm
Width	11 mm
Active membrane area	0.5 cm^2
Hold up volume of membrane	<5 µL
Dead stop volume*	5 µL
Materials of Construction	
Body	Polycarbonate
Filtrate vessel	Polypropylene
Concentrator cap	Polycarbonate
Membrane	Polyethersulfone
Maximum Spin Force (Fixed angle only)	
5,000 to 50,000 MWCO PES	15,000 xg
>100,000 MWCO PES	15,000 xg

*Dead stop volume as designed in molding tool. This volume may vary depending on sample, sample concentration, operation temperature and centrifuge rotor.

Table 2. Performance Characteristics Spin-X UF 500

(Time to concentrate up to 30x [min.] at 20°C and solute recovery %)

Rotor	**40° Fixed Angle**	
Start Volume	**500 µL**	
	Min.	**Rec.**
BSA 1.0 mg/mL (66,000 MW)		
5,000 MWCO PES	15	96%
10,000 MWCO PES	5	96%
30,000 MWCO PES	5	95%
IgG 0.25 mg/mL (160,000 MW)		
30,000 MWCO PES	10	96%
50,000 MWCO PES	10	96%
100,000 MWCO PES	10	96%

Table 3. Chemical Compatibility

(2 hour contact time; compatible pH range pH 1-9)

Acetic Acid (25.0%)	1	Lactic Acid (5.0%)	1
Acetone (10.0%)	3	Mercaptoethanol (10 mM)	1
Acetonitrile (10.0%)	3	Methanol (60%)	2
Ammonium Hydroxide (5.0%)	2	Nitric Acid (10.0%)	1
Ammonium Sulphate (saturated)	1	Phenol (1.0%)	2
Benzene (100%)	3	Phosphate Buffer (1.0 M)	1
n-Butanol (70%)	1	Polyethylene Glycol (10%)	1
Chloroform (1.0%)	3	Pyridine (100%)	2
Dimethyl Formamide (10.0%)	2	Sodium Carbonate (20%)	2
Dimethyl Sulfoxide (5.0%)	1	Sodium Deoxycholate (5.0%)	1
Ethanol (70.0%)	1	Sodium Dodecylsulfate (0.1 M)	1
Ethyl Acetate (100%)	3	Sodium Hydroxide	3
Formaldehyde (30%)	1	Sodium Hypochlorite (200 ppm)	2
Formic Acid (5.0%)	1	Sodium Nitrate (1.0%)	1
Glycerine (70%)	1	Sulfamic Acid (5.0%)	1
Guanidine HCI (6M)	1	Tetrahydrofuran (5.0%)	3
Hydrocarbons, aromatic	3	Toluene (1.0%)	3
Hydrocarbons, chlorinated	3	Trifluoroacetic Acid (10%)	1
Hydrochloric Acid (1 M)	1	Tween 20 (0.1%)	1
Imidazole (500 mM)	1	Triton X-100 (0.1%)	1
Isopropanol (70%)	1	Urea (8 M)	1

* 1 = acceptable, 2 = questionable, testing advised, 3 = not recommended.

Corning® Spin-X® UF 500 Concentrator Ordering Information

Cat. No.	Description	Capacity	Membrane	Pack Size
431477	Spin-X UF 500	500 µL	5,000 MWCO	25
431478	Spin-X UF 500	500 µL	10,000 MWCO	25
431479	Spin-X UF 500	500 µL	30,000 MWCO	25
431480	Spin-X UF 500	500 µL	50,000 MWCO	25
431481	Spin-X UF 500	500 µL	100,000 MWCO	25

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Printed in USA 11/10 POD CLS-AN-114 REV2