

MILLIPORE

# Amicon<sup>®</sup> Ultra



**Centrifugal Filter Devices for the  
Concentration and Purification of  
Biological Samples**

**Ready for an evolution?**



The next stage in centrifugal filter devices.

# Amicon Ultra

You'll never have to choose between speed and recovery again.

The introduction of Amicon Ultra sets a new standard for centrifugal filter devices. This high performance ultrafiltration device marks the evolution of a product platform to provide you with the optimum match of quick sample processing and high recoveries. Amicon Ultra delivers on both speed and sample recovery to give you the high recovery performance and reliability you expect from Amicon devices – with shorter spin times.



Amicon Ultra ultrafiltration device combines Ultracel™ to provide fast sample processing

### Ultra-fast sample processing

Vertical design  
reduces  
polarization and  
is compatible  
with all rotor  
types

### Convenient sample handling

Direct pipette sample  
access eliminates a  
processing step

### Easy viewing of concentrate volume

Transparent device  
allows you to  
monitor concentrate  
volume



### Recoveries > 90%

High recovery Ultracel  
ultrafiltration membrane  
provides maximum  
sample recovery

### Broad chemical compatibility

Heat-sealed Ultracel  
membrane eliminates  
adhesives and the  
risk of downstream  
extractables

low-binding membrane with an innovative vertical housing  
without sacrificing sample recovery.



# Minimize spin times. Maximize results.

Amicon Ultra devices employ short spin times and provide high recovery results for all types of biological solutions. The devices incorporate low-binding Ultracel regenerated cellulose ultrafiltration membrane for sample concentration or purification of dilute or purified protein solutes as well as complex samples such as fermentation broths or cell lysates.

## Applications

- ▶ Concentration of biological samples containing antigens, antibodies, enzymes, nucleic acids, or microorganisms
- ▶ Purification of macromolecular components found in tissue culture extracts or cell lysates
- ▶ Concentration of dilute or pre-purified proteins from column eluents
- ▶ Desalting or diafiltration

## Ultracel membrane selection guidelines

Amicon Ultra 4 mL and 15 mL devices incorporate Ultracel ultrafiltration membrane with molecular weight cut-offs ranging from 10,000 to 100,000\*. The membranes are designed to provide maximum sample recoveries for a range of sample types. Select the MWCO 2–3x smaller than the solute to be fully retained by the membrane.

Membrane description	Membrane MWCO	Protein Solute	Protein Rejection (%)
Ultracel PL-10	10,000	Cytochrome c, 12,400 daltons 0.25 mg/mL	>95%
Ultracel PL-30	30,000	Bovine Serum Albumin, 67,000 daltons, 1 mg/mL	>95%
Ultracel PL-100	100,000	IgG Fr II, 156,000 daltons, 1 mg/mL	>90%

*Performance in Amicon Ultra 15 mL device, using a swinging bucket rotor at 4000xg, 25 °C, and a starting volume of 15 mL.*

\*For additional membrane MWCOs, contact Millipore technical service.

# Amicon Ultra Centrifugal Filter Devices

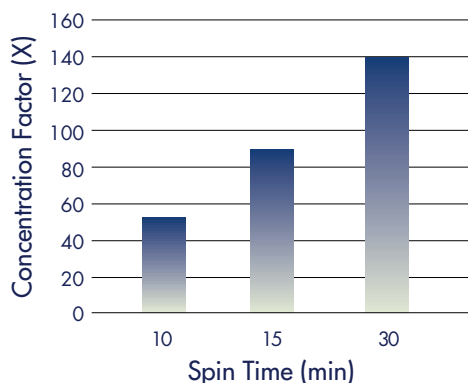
## Ultra-fast spin times

Sample volumes of <4–15 mL can be concentrated or diafiltered (desalt or buffer exchange) in as little as 15 minutes with Amicon Ultra devices. They are compatible with all rotor types.

## High concentrations

High concentration factors can be achieved with a typical concentration factor of about 80–100 fold.

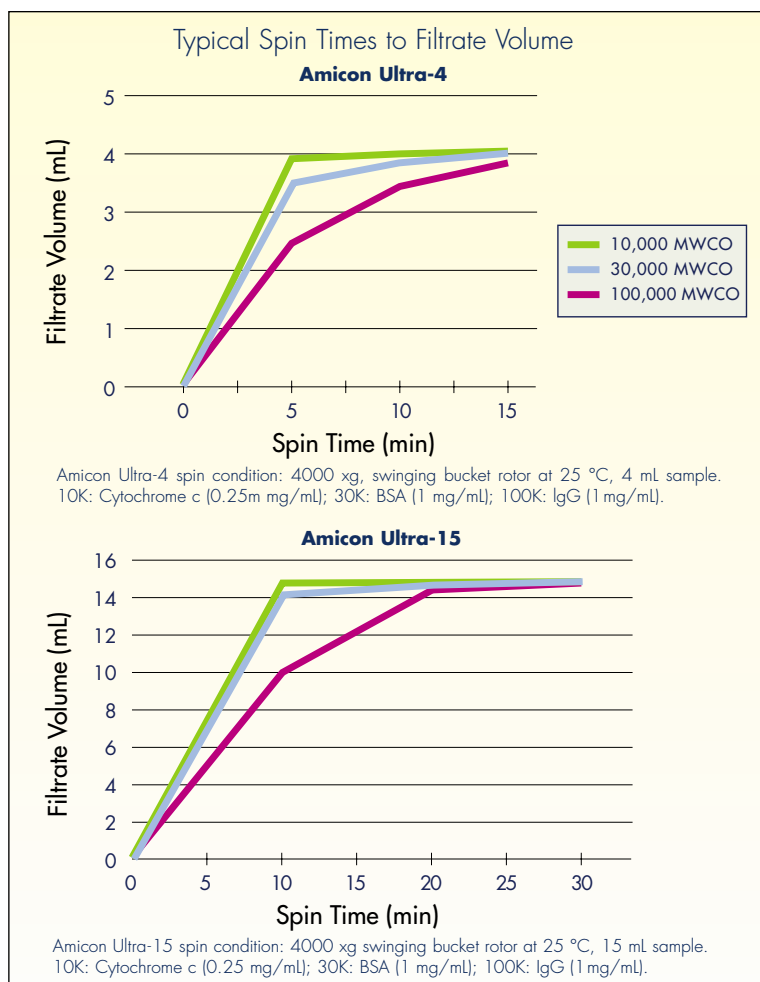
Spin Time vs Concentration Factor



Performance shows results in Amicon Ultra 4 mL device with a 4 mL starting sample of cytochrome c, 12,400 daltons (0.25 mg/mL) at 3 spin times (10, 15, and 30 minutes).

## High recovery

Amicon Ultra devices incorporate the highly uniform Ultracel regenerated cellulose membrane to provide maximum sample recovery. The hydrophilic microstructure of Ultracel membrane ensures the lowest possible adsorption of protein and other macromolecules, and the highest recovery of fully functional proteins. High protein solute recoveries are typically >90% retentate recoveries.



## Typical Retentate (Concentrate) Recovery

### Amicon Ultra-4

Membrane MWCO	Protein Solute	Protein Retentate Volume (mL)	Protein Retentate Recovery (%)
10,000	Cytochrome c, 12,400 daltons (0.25 mg/mL)	0.20	95.00
30,000	BSA, 67,000 daltons (1 mg/mL)	0.20	95.00
100,000	IgG, 156,000 daltons (1 mg/mL)	0.34	91.00

Performance in Amicon Ultra 4 mL device in a fixed angle rotor at 7500 xg at 25 °C. With a 4 mL starting volume, spin times were 10 minutes for 10K and 30K membranes, and 15 minutes for 100K membranes.

### Amicon Ultra-15

10,000	Cytochrome c, 12,400 daltons (0.25 mg/mL)	0.24	93.03
30,000	BSA, 67,000 daltons (1 mg/mL)	0.30	97.94
100,000	IgG, 156,000 daltons (1 mg/mL)	0.28	89.03

Performance in Amicon Ultra 15 mL device using a swinging bucket rotor at 4000 xg at 25 °C. With a 15 mL starting volume, spin times were 15 minutes for 100K membrane and 25 minutes for 10K and 30K membranes.

# Amicon Ultra Specifications



	Amicon Ultra-4 Devices	Amicon Ultra-15 Devices
<b>Maximum Initial Sample Volume</b>		
<i>Swinging Bucket</i>	4 mL	15 mL
<i>Fixed Angle</i>	4.0 mL (45° and 35° rotor angles) 3.5 mL (23° rotor angle)	12 mL (35° rotor angle)
<b>Typical Final Concentrate Volume</b>	50 µL	200 µL
<b>Final Deadstop Volume</b>	20 µL	50 µL
<b>Maximum Relative Centrifugal Force (x g)</b>		
<i>Swinging Bucket</i>	4000	4000 (3500 for concentrated or viscous solutions)*
<i>Fixed Angle</i>	7500*	5000
<b>Active Membrane Area</b>	3.0 cm <sup>2</sup>	7.6 cm <sup>2</sup>
<b>Dimensions (assembled filter unit and centrifuge tube with cap)</b>		
<i>Outer Diameter</i>	22.7 mm	35 mm
<i>Length</i>	124 mm	121 mm
<b>Materials</b>		
<i>Filter Unit</i>	Co-polymer styrene/butadiene	Co-polymer styrene/butadiene
<i>Filtrate Tube</i>	Polypropylene	Polypropylene
<i>Membrane</i>	Low-binding regenerated cellulose	Low-binding regenerated cellulose

\*Validated at 25 mg/mL concentrated solute.

Amicon Ultra centrifugal devices are available in 4 mL and 15 mL volume sizes. They are packaged non-sterile. Filter units are assembled with centrifuge tubes and caps.

## Amicon Ultra Devices



<b>Model &amp; Max.</b>						
<b>Volume</b>	<b>Membrane Type</b>	<b>MWCO</b>	<b>8/pk</b>	<b>24/pk</b>	<b>96/pk</b>	
Amicon Ultra-4 4 mL	Ultracel	5K**	UFC8 005 08	UFC8 005 24	UFC8 005 96	
	low-binding	10K	UFC8 010 08	UFC8 010 24	UFC8 010 96	
	regenerated	30K	UFC8 030 08	UFC8 030 24	UFC8 030 96	
	cellulose	100K	UFC8 100 08	UFC8 100 24	UFC8 100 96	
		300K**	UFC8 300 08	UFC8 300 24	UFC8 300 96	
Amicon Ultra-15 15 mL	Ultracel	5K**	UFC9 005 08	UFC9 005 24	UFC9 005 96	
	low-binding	10K	UFC9 010 08	UFC9 010 24	UFC9 010 96	
	regenerated	30K	UFC9 030 08	UFC9 030 24	UFC9 030 96	
	cellulose	100K	UFC9 100 08	UFC9 100 24	UFC9 100 96	
		300K**	UFC9 300 08	UFC9 300 24	UFC9 300 96	

\*\*Contact Millipore technical service for product availability.

# Specifications and Ordering Information

## Other centrifugal filter device products

The Amicon family of ultrafiltration devices includes Microcon®, Centricon®, Centriprep®, Centriplus® and Centricon Plus. These devices recover concentrated samples by a patented invert spin. They incorporate Ultracel low-binding membrane to provide high sample recoveries and are recommended for dilute protein or DNA samples.



## Amicon Centrifugal Devices



Microcon



Centricon



Centriplus



Centriprep



Centricon Plus-20



Centricon Plus-80

### Model & Max.

Volume	Membrane Type	MWCO	8/pk	24/pk	100/pk	500/pk
Microcon 500 µL	Ultracel Regenerated cellulose	3,000	42420	42403	42404	—
		10,000	42421	42406	42407	42408
		30,000	42422	42409	42410	42411
		50,000	42423	42415	42416	—
		100,000	42424	42412	42413	42414

Centricon 2 mL	Ultracel Regenerated cellulose	3,000	4240	4202	4203	—
		10,000	4241	4205	4206	4207
		30,000	4242AM	4208	4209	4210
		50,000	4243	4224	4225	—
		100,000	4244	4211	4212	4213

Centriplus 10 – 15 mL	Ultracel Regenerated cellulose	3,000	4410	4420	—	—
		10,000	4411	4421	—	—
		30,000	4412	4422	—	—
		50,000	4413	4423	—	—
		100,000	4414	4424	—	—

### Model & Max.

Volume	Membrane Type	MWCO	8/pk	24/pk	96/pk	
Centriprep 12 – 15 mL	Ultracel Regenerated cellulose	3,000	4320	4302	4303	—
		10,000	4321	4304	4305	—
		30,000	4322	4306	4307	—
		50,000	4323	4310	4311	—

### Model & Max.

Volume	Membrane Type	MWCO	2/pk	8/pk	24/pk
Centricon Plus-20 20 mL	Ultracel Regenerated cellulose	10,000	UFC2 LGC 02	UFC2 LGC 08	UFC2 LGC 24
		30,000	UFC2 LTK 02	UFC2 LTK 08	UFC2 LTK 24
Centricon Plus-80 80 mL	Ultracel Regenerated cellulose	10,000	UFC5 LGC 02	UFC5 LGC 08	—
		30,000	UFC5 LTK 02	UFC5 LTK 08	—

For additional product information, including technical notes, protocols and chemical compatibility tables, visit [millipore.com/amicon](http://millipore.com/amicon).

## To Place an Order or Receive Technical Assistance

For additional information call your nearest Millipore office:

In the U.S. and Canada, call toll-free **1-800-MILLIPORE (1-800-645-5476)**

In the U.S., Canada and Puerto Rico, fax orders to **1-800-MILLIFX (1-800-645-5439)**

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<http://www.millipore.com/amicon>

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