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> Millipore Amicon Ultra 0.5 mL Centrifugal Filters, 3 kDa Ultracel - Instruction Manual

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Brand: Millipore

1. INTRODUCTION

The Millipore Amicon Ultra 0.5 mL Centrifugal Filters are designed for rapid concentration and purification of biological samples. Featuring a low-binding Ultracel-YM regenerated cellulose membrane with a 3 kDa molecular weight cut-off, these filters are ideal for dilute protein solutions (ng/mL to µg/mL range), antibodies, and nucleic acids. They are compatible with standard 1.5 mL tube fixed-angle rotors.

Typical applications include:

- Concentrating and purifying proteins and antibodies.
- Concentrating and purifying nucleic acids (as an alternative to ethanol precipitation).
- Desalting and buffer exchange.
- Removal of primers, linkers, and unincorporated labels.

2. PRODUCT FEATURES

- **High Sample Recovery:** Achieves solute recoveries typically greater than 95%.
- **Unique Vertical Housing:** Designed for efficient filtration.
- **Versatile Compatibility:** Suitable for use in standard 1.5 mL tube fixed-angle rotors.
- **Broad Application Range:** Effective for concentrating and purifying proteins, antibodies, and nucleic acids, as well as for desalting, buffer exchange, and removal of small molecules.

3. SETUP AND PREPARATION

Before beginning, ensure you have the following:

- Amicon Ultra 0.5 mL Centrifugal Filters.
- Centrifuge with a fixed-angle rotor capable of accommodating 1.5 mL tubes and reaching up to 14,000 x g.

- Sample solution.
- Pipettes and tips.

Preparation:

1. Inspect each filter unit for any damage. Do not use damaged units.
2. Ensure your centrifuge rotor is clean and balanced.



Image 1: A Millipore Amicon Ultra 0.5 mL Centrifugal Filter unit. This image shows the compact design of the filter, consisting of a sample reservoir and a collection tube, ready for use in a centrifuge.

4. OPERATING INSTRUCTIONS

Follow these steps for optimal performance:

1. **Add Sample:** Pipette up to 500 μL of your sample solution into the upper reservoir of the Amicon Ultra filter unit. Ensure the sample does not exceed the maximum volume mark.
2. **Centrifugation:** Insert the assembled filter unit into a fixed-angle rotor. Ensure the rotor is properly balanced. Centrifuge at the recommended speed and time.
 - For most protein applications, centrifuge at up to 14,000 $\times g$.
 - For DNA/RNA applications, centrifuge at 500 $\times g$.
 - Centrifugation time will vary depending on the desired final concentrate volume, sample viscosity, and temperature. Refer to typical performance data for guidance.
3. **Sample Recovery:** After centrifugation, remove the filter unit from the rotor.
 - To recover the concentrated sample, invert the filter unit into a clean collection tube.
 - Centrifuge again at 1,000 $\times g$ for 2 minutes to transfer the concentrated sample from the filter device into the collection tube.
 - The typical final concentrate volume is 5 to 15 μL .
4. **Desalting/Buffer Exchange (Optional):** For desalting or buffer exchange, after the initial concentration step, add an appropriate volume of the new buffer to the concentrated sample in the filter unit and centrifuge again. Repeat this process as needed.

5. MAINTENANCE AND STORAGE

Amicon Ultra Centrifugal Filters are designed for single use only. Do not attempt to clean or reuse the filters, as

this may compromise performance and introduce contamination.

- **Storage:** Store unused filters in their original packaging at room temperature (15-30°C) in a dry place, away from direct sunlight.
- **Disposal:** Dispose of used filter units and any biological waste according to local regulations and laboratory safety protocols.

6. TROUBLESHOOTING

If you encounter issues during operation, consider the following:

- **Low Sample Recovery:**
 - Ensure the final inversion spin is performed correctly to recover all concentrated sample.
 - Verify that the membrane was not damaged during handling.
 - Check for protein aggregation or precipitation on the membrane.
- **Slow Filtration Rate:**
 - High sample viscosity can slow filtration. Consider diluting the sample if appropriate.
 - Particulate matter in the sample can clog the membrane. Pre-filter samples if necessary.
 - Ensure the centrifuge speed is set correctly.
- **Sample Leakage:**
 - Ensure the filter unit is properly assembled and seated in the centrifuge rotor.
 - Do not exceed the maximum sample volume.

7. SPECIFICATIONS

Specification	Value
Product Type	Centrifugal Filter
Membrane Material	Ultracel-YM Regenerated Cellulose
Molecular Weight Cut-Off (MWCO)	3 kDa
Initial Sample Volume (Maximum)	0.5 mL (500 µL)
Final Concentrate Volume (Typical)	5 - 15 µL
Maximum Centrifugal Force (Proteins)	14,000 x <i>g</i>
Maximum Centrifugal Force (DNA/RNA)	500 x <i>g</i>
Item Weight	4.8 ounces
Manufacturer	COLE-PARMER
ASIN	B00NG2OYRO

8. WARRANTY AND SUPPORT

For product support, technical assistance, or warranty information, please contact Millipore customer service or your authorized distributor. Refer to the official Millipore website for the most current contact details and product

documentation.