

Mini Extruder Pro **FAQs**

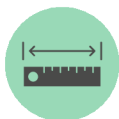
Use this quick guide to answer common questions on compatibility, preparation, cleaning, troubleshooting, storage, and support.

FAQs at a glance



New connection

Gas-tight luer-lock syringes



Size guidance

Approx. 10% above pore size



Storage of liposomes

2-8 °C; avoid freezing



Single-use

Membranes and supports



Typical passes

≥11 passes



Warranty

30 days for workmanship defects

1

What's new?

An overview of the Mini Extruder Pro

The Mini Extruder Pro is an updated version of the original Mini Extruder designed to improve user experience while maintaining the familiar extrusion workflow. The updated system uses **gas-tight luer-lock syringes**, a redesigned base, and a revised internal PTFE membrane support.

The design eliminates the PTFE Seal and PTFE Extruder Washer, helping simplify assembly and use. Syringes have been tested for use up to 80°C.

2

Compatibility

Use only updated-system parts

The Mini Extruder Pro must be used with parts designed for the updated system. Mini Extruder Pro syringes are not compatible with the original Mini Extruder because the luer-lock syringe hub is too large to fit the original internal PTFE membrane support.

The original screw-cap syringe needle is also not compatible. Replacement parts for the original Mini Extruder are expected to remain available until **December 2026**.

3

Membranes, supports, and particle size

Consumables, pore size, and expected sizing

Membranes and polyester membrane supports are single-use consumables. Use circular membranes that are 19 mm in diameter. Select membrane material and pore size based on formulation and application; function is guaranteed only with membranes supplied by Avanti Research™.

Extruded particle size is usually close to, but not identical to, the membrane pore size. As a guideline, final particle size may be approximately 10% higher than the stated pore size. Approximately 11 passes are commonly used. Always complete extrusion with an odd number of passes

Particle size reminder

Final particle size depends on formulation composition, starting particle size, extrusion temperature, number of passes, membrane pore size, and sample preparation.

Confirm size distribution with DLS or another suitable method.

Mini Extruder Pro **FAQs**

Use this quick guide to answer common questions on compatibility, preparation, cleaning, troubleshooting, storage, and support.

4

Sample preparation

Reduce back pressure and support consistent extrusion

Avoid starting with a membrane pore size that is too small for the starting particle size. A step-down approach is recommended: begin larger, then move smaller until the target size is reached.

Sonication can help reduce starting particle size and make extrusion easier. Some lipid formulations must be heated and maintained above transition temperature during extrusion.

Suggested step-down:

0.7 μm $\rightarrow$ 0.4 μm $\rightarrow$ 0.2 μm or 0.1 μm .

5

Cleaning and care

Before first use, after each batch, and after storage

Clean before first use, after every batch, and again before use if stored for an extended period. A mild laboratory-appropriate detergent followed by thorough rinsing with copious DI water is generally suitable.

Clean syringes and extruder components upon receipt and before and after each use. Body components can tolerate autoclaving, but PTFE can become more malleable under extreme temperatures.

Do not autoclave the syringes.

6

Troubleshooting

A practical first-check guide

Troubleshooting sequence: Check assembly first. Then check temperature, membrane pore size, starting particle size, clogging, and syringe condition.

- **Leaking:** Check syringe wear, assembly, back pressure, membrane clogging, and whether the formulation is above transition temperature.
- **Back pressure:** Some is expected. Excessive pressure may mean particles are too large for the membrane pore size or the formulation is not heated appropriately.
- **Hard-to-push syringes:** Measure particle size if possible; otherwise sonicate for at least 30 minutes, start with 0.7 μm , then step down.
- **Fluid will not draw:** Inspect the barrel, plunger, luer-lock connection, residue, blockage, and needle condition.
- **Back-of-syringe leak:** The plunger tip may be worn and need replacement.
- **Stuck needle/connector:** Stop use and remove carefully with appropriate tools and safety precautions.

7

Storage

After liposome preparation

Prepared liposomal suspensions are most stable when refrigerated at 2-8 $^{\circ}\text{C}$. Do not freeze unless the formulation has been validated for freeze/thaw storage.

Neutral pH buffers are recommended.

8

Warranty

Support for the updated system

Avanti Research™ guarantees the Mini Extruder Pro is free of workmanship defects for 30 days.

Avanti Research™ does not offer demos for this product.



Scan for resources



Assembly guide, extrusion technique, cleaning and care, FAQs and more!

Non-warranty

The information in this publication is believed to be accurate and is given in good faith, but no representation or warranty as to its completeness or accuracy is made. Suggestions for uses or applications are only opinions. Users are responsible for determining the suitability of these products for their own particular purpose. No representation or warranty, expressed or implied, is made with respect to information or products including, without limitation, warranties of merchantability, fitness for a particular purpose, non-infringement of any third-party patent or other intellectual property rights including, without limit, copyright, trademark and designs. Unless otherwise stated, any trademarks identified herein are trademarks of the Croda group of companies.