

Priming the ALZET® Osmotic Pumps

ALZET pumps have a start-up gradient where the pumps absorb fluid and increase to the in vivo temperature. During this equilibration period, the pumps are slowly building up to their actual release rate as shown in their package insert. Depending on the pump model, this equilibration period can range from 3 hours to 60 hours. This release rate equilibration will occur automatically in vivo. However, in some experimental cases it may be necessary to equilibrate, or “prime” the pumps in vitro to ensure steady-state delivery after implantation. Read below to determine if priming of the pumps prior to implantation is required for your study.

In vitro priming of ALZET pumps is mandatory if:

- Immediate pumping is required after implantation
- A catheter is used with the pump
- A viscous solution is delivered
- The drug solution may have acute toxic effects

If none of the above applies, the in vitro priming step can be skipped. The ALZET pump can be implanted right after filling, and the release rate equilibration will occur automatically in vivo. Please note that steady state delivery of the agent will not be reached until the pump is fully equilibrated (refer to the table below for required priming durations for each pump model).

Priming durations for ALZET Pumps

Priming Duration	3 hours	4-6 hours (or overnight)	40 hours	48 hours	60 hours
Pump Models	2001D	1003D, 1007D, 1002, 2001, 2002, 2ML1, 2ML2, 2ML4	2004	1004	2006

Priming Procedure

1. Fill the pumps in the usual manner; priming is the last step prior to implanting.
2. Place the prefilled pumps in sterile 0.9% saline at 37° C for the specified duration.
3. If using a catheter, it is possible to drape the end of the catheter outside the beaker to avoid any mixing of solutions.
4. Do not be concerned (if due to evaporation), fluid is not observed dripping from the end of the catheter, as evaporative loss can occur. Remove the pump from the saline and implant immediately.

Notes/Tips:

- a. *Immersing the filled pump in an aqueous environment (e.g., conical tube filled with sterile saline) will not result in the priming fluid entering the pump reservoir or the dilution of your compound. See the function of the [flow moderator](#).*
- b. *The pump does not need to be flat, nor fully submerged.*
- c. *If using a catheter, you may observe evaporation at the distal end. To avoid this, you can prime the pumps without the catheter and attach your filled catheter prior to implantation. The attachment may introduce a small drop of air; however this won't affect the functionality of the pump.*
- d. *While a small amount of drug solution will be expelled during priming, this will not compromise administration of your compound for the full delivery period. The pumps are manufactured such that the reservoir holds sufficient solution to deliver beyond the specified infusion period.*