

## Vehicle Viscosity



Researchers often struggle to find an appropriate vehicle that ensures complete solubility of their test agents for animal dosing. Vehicles such as polyethylene glycol (PEG 300, PEG 400), propylene glycol and glycerol offer good solubility alternatives for dissolving lipophilic compounds, but they are highly viscous. However, viscosity is not a problem for ALZET<sup>®</sup> pump delivery. ALZET Osmotic Pumps are capable of delivering solutions with a viscosity of up to 100,000 cP (1 cP = 1 mPas), this corresponds to roughly 200 times the viscosity of heavy weight engine oil or approximately the viscosity of ketchup!

When using the ALZET Osmotic Pumps with a viscous solution, it is necessary to first *prime* the pumps in vitro. To prime the pumps, we recommend placing the filled pumps in 37-degree sterile saline for 4-6 hours, preferably overnight. This will allow the pumps to equilibrate and pump at their actual pumping rate prior to implantation. The aforementioned priming duration does not apply for models 2001D and 2004, which take 3 hours and 40 hours respectively to equilibrate. More on [priming](#).

In addition to priming the pumps, it is also important to fill the pumps very slowly in order to minimize the introduction of air bubbles into the pump's reservoir. Researchers will experience a higher degree of backpressure when filling pumps with viscous solutions compared to aqueous solutions. If you encounter a high amount of backpressure, try the following tips:

- ♦ Try filling the pumps with the filling tube at a slight angle relative to the pump (about 15 degrees). This will create a vent for the air in the reservoir to escape more easily.
- ♦ Insert and remove the flow moderator several times before reinserting the filling tube. This will help expand the orifice. More on [filling](#)

To speak with a technical support representative regarding your specific agent or study details, call 800-692-2990 or e-mail us at [alzet@durect.com](mailto:alzet@durect.com)