

introduction zone **14** may be inserted into and sealed with vesicle formation zone **16** with a small amount of material **26**, such as a sealer, epoxy, or glue.

**[0033]** The plurality of outer feed lines **24** may comprise six outer glass lines arranged around the perimeter of a central line. For example, a glass multi-barrel pipette, or section thereof, may comprise a central glass line with six glass lines about its circumference, providing a bundle of seven glass lines. Each glass line may have an internal diameter on the order of 0.58 mm for example. Viewing the terminating ends of the glass lines axially, as seen in FIG. 2, the section may appear something like a daisy. Central feed line **20**, in fluid introduction zone **14**, may comprise PEEK tubing configured for the flowthrough of an organic stream and may be threaded into a central glass line of the bundle of seven glass lines until it protrudes a few millimeters, or other selected distance, past the terminus or outlets **27** of the plurality of outer feed lines **24**. This configuration may create radially symmetric physicochemical conditions of fluids flowing into vesicle formation zone **16** and allow for substantially monodisperse vesicle preparations.

**[0034]** In at least one aspect of device **100**, a section of sheath **12** in vesicle formation zone **16** comprises the same PVC tubing as the section of sheath **12** in introduction zone **14**. Fluid introduction zone **14** may be mated to the terminal end of vesicle formation zone **16** and sealed with epoxy or glue. At vesicle formation zone's **16** terminus, or sheath outlet **18**, a fluid containing vesicles may be collected and ready for use, further manipulation, or analysis.

**[0035]** FIG. 3A shows parallel flow device **200** configured for the formation of vesicles. Device **200** has a fluid introduction zone **14** and a vesicle formation zone **16**. Fluid introduction zone **14** has a longitudinally extending sheath **12** disposed about central feed line **20**. Sheath **12** has an inlet **10** configured and disposed for receiving an aqueous fluid flow. Central feed line **20** has an inlet **11** configured and disposed for receiving an organic fluid flow. Central feed line outlet **22** is disposed centrally with longitudinally extending sheath **12**. Support **21** is configured and disposed to centrally support central feed line outlet **22** in sheath **12**. Support **21** may be any material or component configured to centrally support central feed line **20** in sheath **12**, for example support **21** may be a section of a multi-barrel pipette.

**[0036]** Vesicle formation zone **16** comprises an inwardly tapered portion **15** and a smaller diameter portion **13**, of outer sheath **12**. Smaller diameter portion **13** terminates with sheath outlet **18**. In the aspect of the vesicle formation device shown in FIG. 3A, central feed line outlet **22** may be positioned at varying positions proximate to or within inwardly tapered portion **15**. In this manner, the flow rate ratio of an organic fluid flowing out of central feed line outlet **22** with respect to a parallel flowing fluid, flowing through outer sheath **12**, may be changed or varied.

**[0037]** Fluid introduction zone **14**, of vesicle formation device **200**, may comprise a first and a second outlet. The first outlet may be in flow communication with inlet **10** and configured and disposed provide a flow of an aqueous stream surrounding or sheathing an organic fluid stream, flowing from a second outlet or central feed line outlet **22**. Outer sheath **12** may have inwardly tapered portion **15**, proximate second outlet **22**, of fluid introduction zone **14**, and a longitudinally extending portion **13**, extending from inwardly tapered portion **15** to outlet **18** of vesicle formation zone **16**. Second outlet **22** may be movable about a longitudinal axis of

outer sheath **12**, with respect to inwardly tapered portion **15**. In this respect, a flow rate ratio between fluids flowing from the first outlet and the second outlet may be adjusted.

**[0038]** Parallel flow device **200** may provide for the formation of vesicles with a controlled proportion of an organic/alcohol stream, flowing through central feed line **20**, with respect to a volume of an aqueous stream, flowing through outer sheath **12**, in vesicle formation zone **16**. This configuration may result in a higher concentration of vesicles, which may be desirable. Additionally, the structure or plumbing may be more robust and may radially center the central organic/alcohol stream, flowing through central feed line **20**, proximate an exact middle of the parallel flowing outer aqueous stream, flowing through outer sheath **12**. Therefore, the use of a tapered capillary or pipette as outer sheath **12**, and a rigid central feed line **20**, such as stainless steel/fused silica capillary insert, may provide and a more rigid structure. Additionally, providing support **21** configured for the movement of central line **20** therein, may provide an improved method of adjusting or tuning the flow rate ratios of the parallel flowing organic and aqueous streams.

**[0039]** In at least one aspect parallel flow device **200**, outer sheath **12** having tapered portion **15** and a smaller diameter portion **13**, comprises a standard glass Pasteur pipette. A polymeric tube, such as Tygon®, may be sealed about the larger opening end of the pipette and central feed line **20** may be extended through the wall of the polymeric portion of outer sheath **12**. In this respect, central feed line **20** may have inlet **11** disposed outside and apart from sheath inlet **10** for the introduction of different fluids into each inlet **10** and **11**.

**[0040]** FIG. 3B shows parallel flow device **300**. Device **300** has a fluid introduction zone **14** and a vesicle formation zone **16**. Fluid introduction zone **14** has a longitudinally extending sheath **12** disposed about central feed line **20**. Sheath **12** has an inlet **10** configured and disposed for receiving an aqueous fluid flow. Central feed line **20** has an inlet **11** configured and disposed for receiving an organic fluid flow. Central feed line outlet **22** is disposed centrally with longitudinally extending sheath **12**. Support **21** is configured and disposed to centrally support central feed line outlet **22** in sheath **12**. Support **21** may be any type of support, as is known by persons having ordinary skill in the art, configured and disposed to support central feed line outlet **22** centrally within sheath **12**.

**[0041]** Device **300** may be configured for the formation of vesicles and may comprise fluid introduction zone **14** and vesicle formation zone **16**. Fluid introduction zone **14** may comprise a first outlet about central feed line outlet **22**, in flow communication with inlet **11**, and a second outlet, central feed line outlet **22**, configured and disposed to provide parallel flow of an outer flow stream, flowing from the first outlet, sheathing an inner flow stream, flowing from the second outlet. Vesicle formation zone **16** may be configured and disposed to receive a parallel flow of the outer flow stream, flowing from the first outlet, sheathing the inner flow stream, flowing from the second outlet, and may be configured for a controlled and substantially uniform dispersion of an organic material, flowing in the inner flow stream, at a plane perpendicular to vesicle formation zone **16**.

**[0042]** Vesicle formation zone **16** has outlet **18** and may comprise central feed line **20** and outer longitudinally extending sheath **12** having an inner diameter greater than an outer diameter of central feed line **20**. Central feed line **20** may have a second outlet **22** centrally disposed in outer longitudinally extending sheath **12**. A first outlet of fluid introduction zone