Supplementary Material (ESI) for Soft Matter

Electronic Supporting Information

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1 POPC and POPC/DMPS liposomes

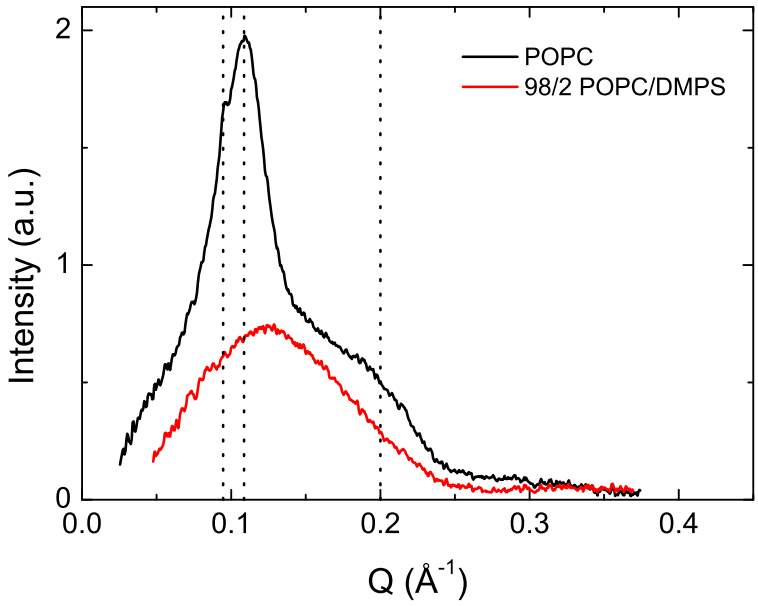

Figure 1: SAXS scattering intensity for POPC (black) and for POPC/DMPS (red) liposomes obtained as described in the text. Two main broad structural peaks around $Q = 0.1\text{Å}^{-1}$ (and a second order peak at $Q = 0.2\text{Å}^{-1}$) are present in POPC sample; they indicate that the samples are composed by multilamellar vesicles. These peaks disappear when liposomes were prepared in presence of a small fraction of ionic lipids (DMPS, 2% by weight) indicating, as expected, a strong correlation between lipid charge and particle morphology.

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2 Influence of the freeze-drying process

To check the sample integrity DLS measurements have been carried out before and after the freeze-drying process. Since DLS requires a highly diluted sample the hydrated powder has been re-disperse in a water buffer after the freeze-drying process. The comparison between the two size-distributions, in Figure 2, indicates that a vesicular suspension is obtained after the re-dispersion. Nevertheless some differences are present: the freeze-drying process may promote a vesicle aggregation leading to a slight larger particle size, but we can assure that it can not dismantle our vesicles.

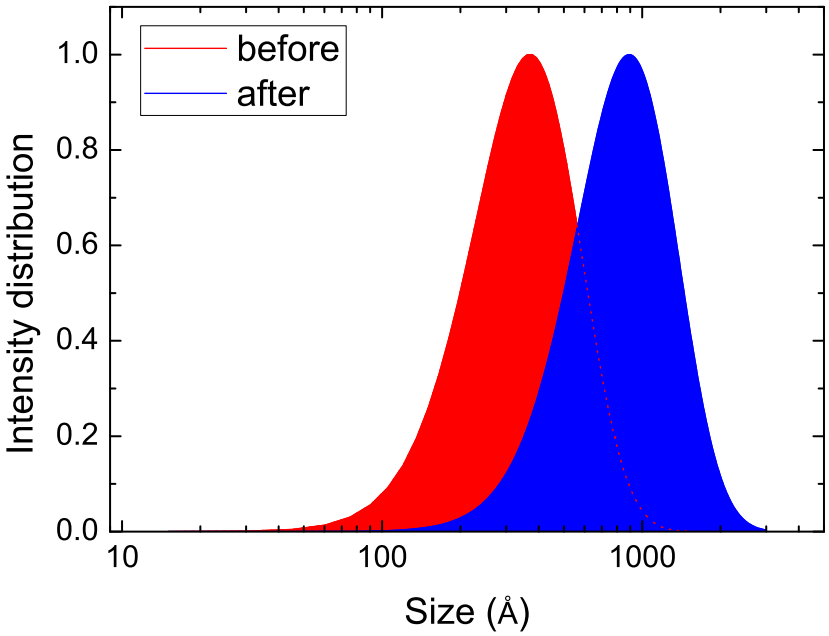

Figure 2: Particle size distribution for PCPS samples before (red) and after (blue) the freeze-drying process on highly diluted suspension.