Homework:

1. Compute P(r) from Appoferritin. What can we infer from this?
2. Estimate the total volume fraction of the mixture of PS80 and m-cresol that form the aggregates from the data in PS80_HW7.ABS

Polysorbate 80 (PS80) is commonly used surfactant molecules in the pharmaceutical industry. And mcresol is a preservative in some protein formulations. Both are relatively small molecules. It has been recently found that mixing these two together can cause the aggregation in the product. In order to study the aggregates, a SANS experiment is performed. And the data is shown in the figure. (Note that the background for this data has been subtracted already.)

The SLD of the solvent is 6.32×10-6 Å-2. To simplify the problem for the homework, we assume that the SLD of the PS80 and m-cresol is the same with the average value of 1.0×10-6 Å-2. For this two-phase system, one phase is D2O and another phase is PS80 and m-cresol.

(If you are interested in reading the background information for the aggregation behavior of PS80 and m-cresol, you can read a recent paper, Gilbert et al., “Preservative induced polysorbate