

 ESRF	Experiment title: Extremely dilute lyotropic 3D crystalline phase in a water/oil/surfactant mixture b) shear behaviour	Experiment number: <i>SC-475</i>
Beamline: ID2 A	Date of experiment: scheduled from: 20 th to: 22 nd november 1998	Date of report: 24-08-98
Shifts: 4	Local contact(s): Olivier Diat	<i>Received at ESRF:</i> 31 AOUT 1998

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Report:

This experiment is one of two experiments (SC-474 and SC-475) we proposed in march 1998 on ID2 A and that were accepted. In SC-474 we proposed small angle scattering experiments on an extremely dilute lyotropic crystalline phase (the crystal symmetry is most probably bicontinuous cubic) of a unit cell parameter of up to 2600 Å. In SC-475 we proposed shear experiments on this crystal.

As already pointed out in the first proposal, the observed equilibration times, both for the equilibrium structure and to attain the steady state under shear, are extremely long and of the order of 1 to 2 hours. Furthermore, the crystal is very sensitive to temperature variations, i.e. a temperature variation of 0.6 °C changes the unit cell parameter by 900 Å. This makes experiments rather difficult, and a lot of care has to be taken during the experiment, and reproducibility has to be checked. This leads to rather long experiments, which is why we asked for 9 shifts for each experiment in agreement with the local contact.

Unfortunately, we were only allocated 4 shifts (block allocation of 9 shifts for the two experiments). In our opinion, this too short to carry out both experiments reasonably. After consultation with the local contact, we decided to concentrate on SC-474 and thus on the improvement of our knowledge of the equilibrium structure during the allocated beam time, and to do some preliminary tests to assure the success of SC-475 under good conditions in a future session. This is the reason why we renew our proposal for 9 shifts of beam time for SC-475.