

Example measurement data of Microtrough G4

In the following figures measurement data generated on a Microtrough G4 is presented. The experiment was done using DPPC on water in ambient (not temperature controlled) conditions. A rectangular glass substrate with perimeter of 164 mm was initially submerged in the aqueous subphase. DPPC lipid was spread from a 2 mg/ml DPPC in chloroform onto the aqueous subphase using a Hamilton syringe. After an initial equilibration period of ca. 10 minutes, the film was compressed to 50 mN/m with a barrier speed of 20 mm/min. When the pressure was reached the substrate was withdrawn at 0.5 mm/min, while the pressure was maintained at 50 mN/m, after which the pressure was maintained at 50 mN/m for ca 10 hours. The experiment was done in ambient conditions on an ordinary laboratory table.

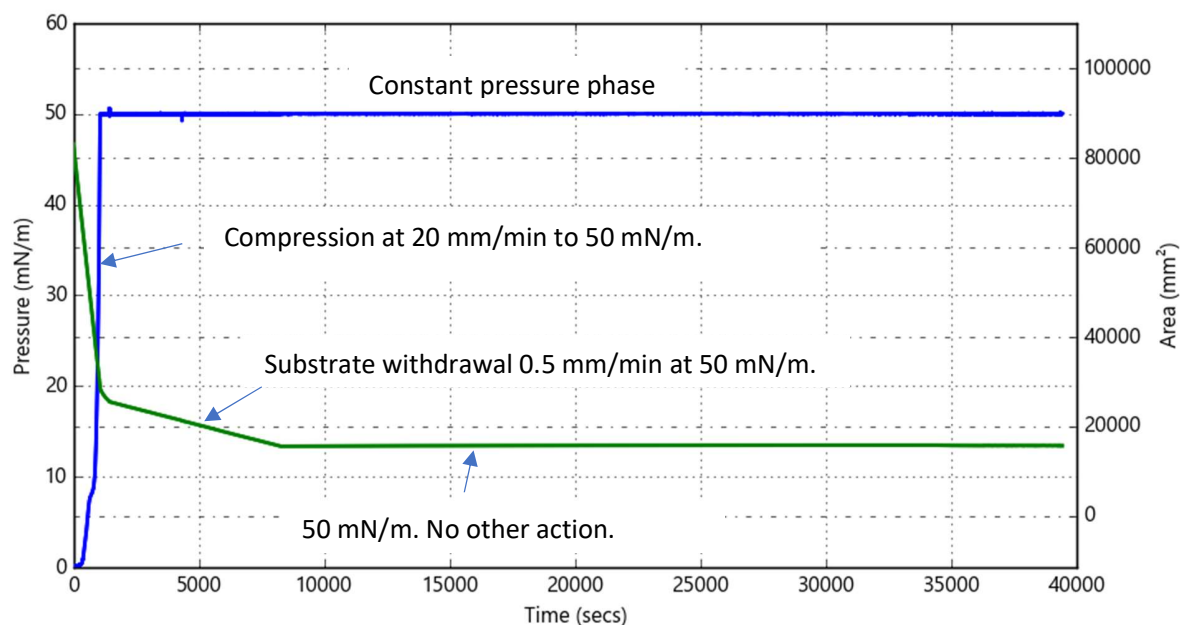


Figure 1. (blue <-) Surface pressure and (green->) area data as a function as a function of time. The transfer ratio during the withdrawal of the glass substrate, $\Delta A_{\text{trough}}/\Delta A_{\text{substrate}}$, was 1.015.

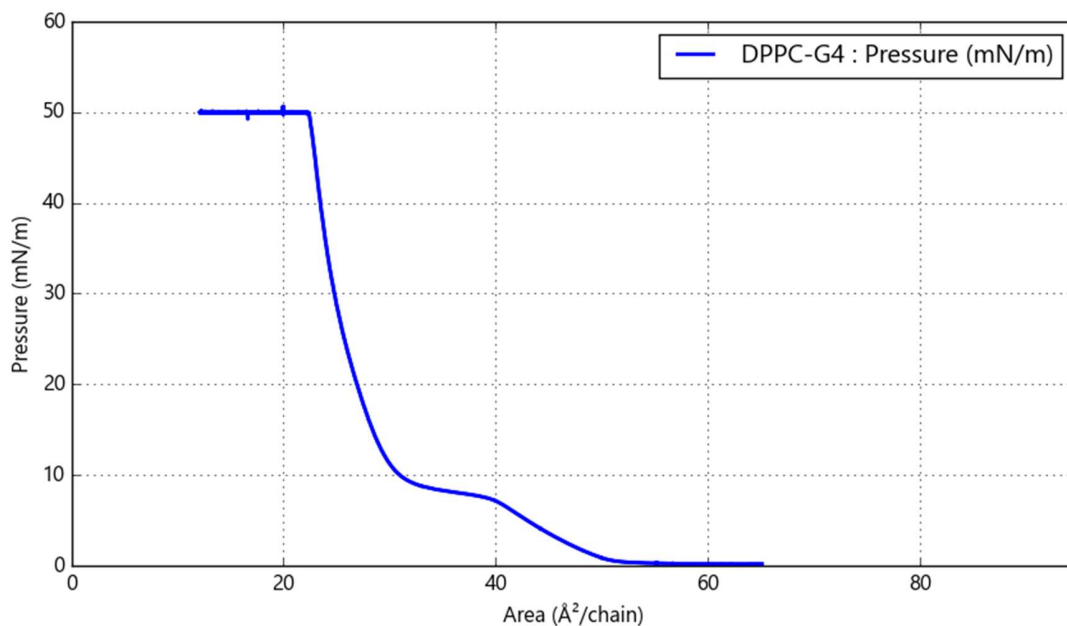


Figure 2. Plotting the data as Surface pressure vs. Area/chain (=2 x Area/molecule for DPPC) emphasizes the typical compression isotherm.

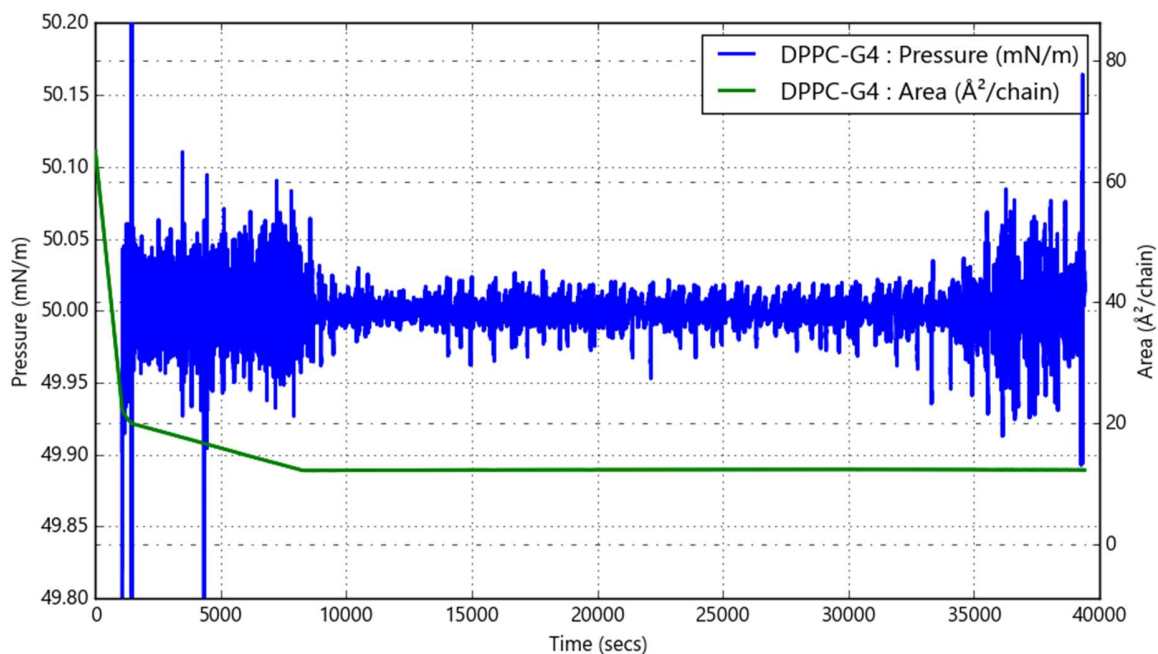


Figure 3. Magnification of the surface pressure during the constant pressure phase. The withdrawal of the substrate increases noise due to coupling between the barrier drive to dip coater through the constant pressure PID control loop. The increase in noise at ca. 34000 is coincides with increased activity in the building in the morning. The sampling was done at 4 Hz without any filtering.