



Figure 4.8 Interlamellar layer d-spacings of the system $C_{12}EO_5$ -Azone-water.

interface with the aqueous compartment. This fact coupled with the increased structure arising from a greater number of trans configurations in the hydrophobic region—a necessary result of packing of alkyl chains in this fashion—will lead to more order in the region of the polyoxyethylene chains to which the water molecules are bound. The consequence of this is to increase S_b and Δv_b .

Small-angle x-ray diffraction measurements yielding values of the characteristic d-spacing (Fig. 8) also indicate structural changes in the system as the oil content is varied at fixed mole ratios of Azone/water. The expected linear increase in d-spacing is found with increasing water content (Fig. 9), although the slope of the plot decreases with an increasing Azone/surfactant ratio. If the surfactant/water ratio is kept constant, an initial increase in the d-