C. Incorporation of Mixed Enhancers

The differing influences that propylene glycol and either Azone or oleyl alcohol have on the stability of the bilayers should be reflected in the behavior of the system in the presence of binary mixtures with propylene glycol. Such mixtures have been studied (4,29,30) as topical delivery vehicles, and synergistic effects have been found in the delivery of certain drugs. A preliminary study of the effects of incorporating binary mixtures of the type oleyl alcohol–propylene glycol and Azone–propylene glycol into the lamellar phase is summarized in Figures 10 and 11. There is an enhancement in the maximum uptake of the mixture by the bilayers that is greater than for either of the individual components. The enhancement is most pronounced for oleyl alcohol–propylene glycol mixtures (about 55% w/w) which compares with about 26% for oleyl alcohol or about 5% for propylene glycol alone. The increased water capacity exists

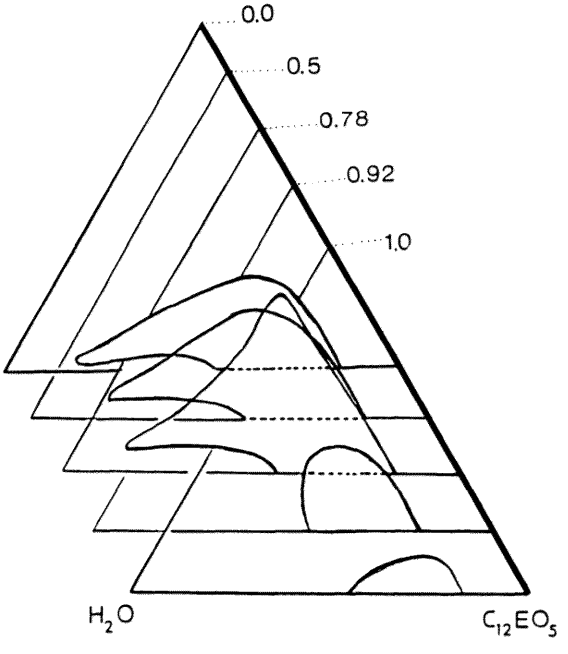

Figure 4.10 Partial phase diagrams of the system $C_{12}EO_5$–water with solubilized oleyl alcohol–propylene glycol of different PG mole fractions (numbers at the apex of the diagrams).