



Figure 17.3 Ternary phase behavior for the water-Arlacel 20-AOT system at 25°C. The single-phase regions are denoted by L for a clear, colorless, isotropic liquid, D for the lamellar liquid crystalline phase, I_2 for the cubic liquid crystalline phase, and F for the inverse hexagonal liquid crystalline phase.

ture) and the nonionic surfactant sorbitan monolaurate results in a microemulsion capable of obtaining a molar water/surfactant ratio of approximately 50. Both of these surfactants are suitable for topical use, and the phase behavior for AOT has been extensively studied (24,25).

To further evaluate this system, a comprehensive study of the phase behavior resulting from this surfactant mix when combined with water and oil was completed (26,27). Figure 3 provides the base diagram for the water-Arlacel 20-AOT system. The most striking feature of this diagram is that less than 5% (w/w) of Arlacel 20 can be solubilized in the water-AOT lamellar structure at equilibrium. For the water/AOT weight ratios from 4:1 to 3:7, addition of 4% to 8% Arlacel 20 resulted in separation of an isotropic phase that could be detected microscopically after approximately 1 week. The addition of larger amounts of Arlacel 20 had a more im-