



Figure 17.6 Phase behavior for the water–octanol–AOT system at $24 \pm 2^\circ\text{C}$. Phases are labeled as in Fig. 4. Compositions circled are those described in Table 4.

75 until less than 40% AOT-75 is present (i.e., greater than 60% Arlacel 20). Thus, the mixing problems characteristic of the waxy 100% AOT are not encountered with AOT-75. Furthermore, the rheology studies indicate that the most readily combined binary surfactant mixtures will contain greater than 40% AOT-75. Because microemulsions are thermodynamically stable and their formation is reversible with temperature, the mixing of 100% AOT could be facilitated by heating. However, studies indicating hydrolysis of AOT upon long-term storage (29) discourages this approach.

The extent of the microemulsion region between 100% AOT-75 and 60:40 AOT-75/Arlacel 20 is shown in Figure 9. This one-phase region grows in area smoothly. All surfactant ratios except the