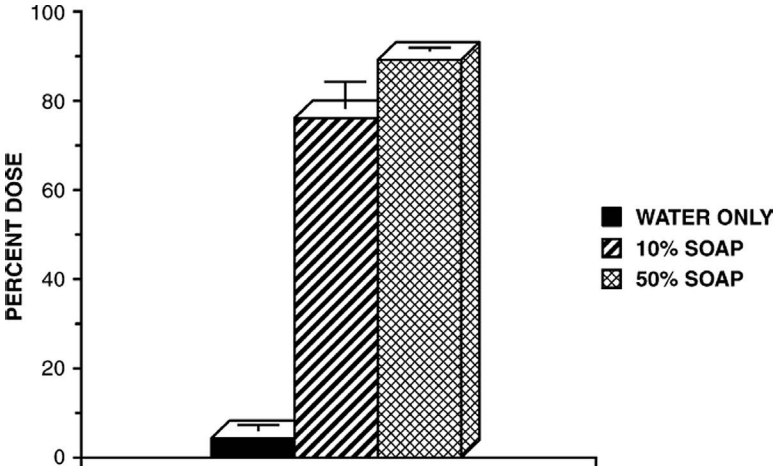

FIGURE 23.8 Alachlor was added to powdered human stratum corneum and then partitioned against water only or against water with 10% or 50% soap. Soap is required to remove alachlor, which is lipid soluble. This is a good in vitro model to screen potential decontamination vehicles.

The PHSC is made according to Wester et al. (4). It is then mixed with [^{14}C]alachlor in Lasso formulation, allowed to sit for 30 minutes, and then centrifuged. The alachlor, a lipid-soluble chemical, partitions (90.3 ± 1.2%) into the PHSC; 5.1 ± 1.2% remains in the Lasso formulation. Water-only wash (and subsequent centrifugation) removes only 4.6 ± 1.3% of the "bound" alachlor. However, when the bound alachlor–stratum corneum is washed with 10% and 50% soap and water (v/v), 77.2 ± 5.7% and 90.0 ± 0.5% of the alachlor is removed from the stratum corneum, respectively. Such a model would predict that alachlor in Lasso cannot be removed from the skin with water-only washing, but that the use of soap will decontaminate the skin. The "lipid" constituents of soap probably offer a more favorable partitioning environment for the alachlor.

23.3 EFFECTS OF OCCLUSION AND EARLY WASHING

Table 23.2 shows the effect of duration of occlusion on the rate of absorption of malathion (5). What is important from this table is that 9.6% of the applied malathion was absorbed during a zero-time duration. There was an immediate wash of the site of application with soap and water. Almost

TABLE 23.2
Effect of Duration of Occlusion on Percutaneous Absorption of Malathion in Humans

Duration (hr)	Absorption (%)
0[a]	9.6
0.5	7.3
1	12.7
2	16.6
4	24.2
8	38.8
24	6.8

[a] Immediate wash with soap and water.