Table 1.1 Vehicle Composition

| Ingredient | Vehicle 1 (wt%) | Vehicle 2 (wt%) |
|---|---|---|
| Sorbitan stearate | 1.2 | 1.2 |
| Polysorbate 60 | 3.6 | 3.6 |
| Propylene glycol | 11.9 | 0 |
| Caprylic/capric triglyceride | 0 | 11.9 |
| Water | 83.3 | 83.3 |

## IV. FORMULATION EXAMPLE: DESONIDE

It is often desirable to change key ingredients in a formulation, and this substitution can occur without any loss in vehicle performance. As an example consider the substitution of caprylic/capric triglyceride for propylene glycol in a formulation for the steroid desonide. The reason for such a replacement is to move from a hydrophilic base, such as propylene glycol, to a lipophilic base. It is also expected that, under occlusion, the triglyceride system (15,16) would be less irritating than the propylene glycol vehicle.

The experimental vehicles saturated with desonide are listed in Table 1. According to thermodynamics, the flux should be the same from both systems, unless there is an effect on the barrier properties of the skin. The fluxes across hairless mouse skin and the vehicle solubilities (17) are given in Table 2, from which it is observed that the fluxes are indeed the same (within experimental variations), and the solubilities are only slightly different. When

Table 1.2 Desonide Solubility and Flux Across Hairless Mouse Skin

| | Vehicle | Solubility (mg/ml) | Flux (mg/hr × $10^4$) |
|---|---|---|---|
| 1 | Propylene glycol | 0.40 ± 0.02 | 8.3 ± 4 |
| 2 | Caprylic/capric triglyceride | 0.53 ± 0.03 | 13 ± 8 |