Transepidermal Water Loss

Ryan and Mezei[1] recently reported interesting and important data on the effect of polysorbate 85 on the transepidermal water loss from human skin. They found that the transepidermal water loss was increased by repeated treatments with a 10% blend of polysorbate 85 in petrolatum USP above that resulting from a control utilizing only petrolatum USP. The data failed to disclose whether or not the transepidermal water loss was reduced by repeated inunction with petrolatum USP, an effect that may obscure the significance of the data presented.

The significance of their findings is further complicated by the fact that the skin of the subjects was washed with "soap and water" prior to the measurement, because the degree of removal of petrolatum by soap and water may be influenced by the presence (or absence) of the nonionic surfactant. The fact that cosmetic *emulsions* have a tendency to increase the transepidermal water loss was reported as early as 1957 by Powers and Fox[2], and an explanation of this finding has been a problem for many years.

We recently attempted to explain[3] why a preparation that increases the transepidermal water loss *in vitro* relieves the drying–chapping syndrome during clinical testing. Until a valid explanation of these paradoxical findings is available, it appears premature to conclude that ". . . increased water loss through the skin . . ." may result in ". . . dry skin . . . ."

Martin M. Rieger
Consumer Products Research
Warner–Lambert Research Institute
Morris Plains, NJ 07950

Received April 23, 1975.

[1] K. J. Ryan and M. Mezei, *J. Pharm. Sci.*, **64**, 671(1975).
[2] D. H. Powers and C. Fox, *Proc. Sci. Sect., TGA*, **28**, 21(1957).
[3] M. M. Rieger and D. E. Deem, *J. Soc. Cosmet. Chem.*, **25**, 253(1974).