

Table 11.2 Absorption of Paraquat and Water Through Human and Laboratory Skin

In vivo/in vitro	Paraquat permeability rate ($\mu\text{g}/\text{cm}^2$)	
Human (in vivo)	0.03	
Human (in vitro)	0.5	
	Permeability constant ($\text{cm}/\text{hr} \times 10^5$)	
	Water	Paraquat
Human	93	0.7
Rat	103	27.2
Hairless rat	130	35.3
Nude rat	152	35.5
Mouse	164	97.2
Hairless mouse	254	1065.0
Rabbit	253	92.9
Guinea pig	442	196.0

B. Cell Design

The diffusion cells, connecting lines, and collection chambers should be made from inert, nonreactive material. The drug can disappear through volatility and apparatus adsorption. Material balance in the study design is a check on this. Table 3 shows this difference (4). If solubility in reservoir fluid is a problem, then the larger volume from a flow system may result in relevant data (Table 4; 5).

C. Temperature

It is fortunate that circulating bath water of 37°C results in skin surface temperature of 32°C, just as in humans in vivo. Obviously, temperatures should be verified.

D. Dose

This is easily determined by taking a known volume of formulation, spreading it over human skin, and measuring the skin area covered