Disposition of Radioactivity Following 24 Hours Dermal Exposure of 2.5% [^{14}C]Dihydroxyacetone in Water to Human Skin – Group 1[a,b]

Disposition Summary [Applied Dose (%)]

Sample	% Dose Recovered[c] Mean ± SEM
Stratum Corneum-1 (tape strips 1-5)	6.5 ± 1.3
Stratum Corneum-2 (tape strips 6-10)	4.5 ± 1.6
Viable Epidermis & Dermis	12.4 ± 8.1
Total Skin Content	23.4 ± 10.6
Receptor fluid	0.4 ± 0.17
Total applied Dose Absorbed	**23.9 ± 10.6**
Wash	60.5 ± 8.9
Total % Dose Recovered	**84.3 ± 2.4**

[a] All values represent data 24 hours after dihydroxyacetone (DHA) application. DHA was applied (15 uL/cm^2) in water at a concentration of 2.5% unlabeled DHA and spiked with approximately 2 ug of radiolabeled DHA. The dosing solutions were left on the skin for 24 hours to simulate consumer use, then washed off and assayed for radioactivity.

[b] Excised human skin was obtained from cosmetic surgical procedures (abdominoplasty) performed at two plastic surgery clinics. Subcutaneous fat was removed and the skin was dermatoned. Discs of dermatoned skin were obtained using a brass punch (13/16"). Each disc was mounted in a diffusion cell (exposed surface area, 0.64 cm^2) epidermal side up. Receptor fluid was used to maintain viability of the skin and skin surface temperature was maintained at 32ºC by circulating 35ºC water through a diffusion cell holding block. Receptor fluid fractions were collected for 6 hour intervals for a total of 24 hours using a fraction collector. Upon termination of the experiment, the skin was washed to remove unabsorbed DHA from the skin surface. Skin discs were tape stripped 10 times to determine the amount of [^{14}C]Dihydroxyacetone remaining in the stratum corneum verses the viable epidermis/dermis.

[c] Values are the means ± the standard error of the mean (SEM) of 2-4 replicate measurements for each of three pieces of human skin (n = 3).