**Suppl. table 1.** Change in spectral features following 28-days treatment with the test emollient compared to the control emollient

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Spectral feature | Skin Surface | | |  | Within the SC | | |
| Aquamol | Balneum | p-value |  | Aquamol | Balneum | p-value |
| ΔWater (3300/AII, cm3) | -0.116 ±0.154 | 1.744 ±0.561 | 0.0014 |  | -0.094 ±0.135 | 1.267 ±0.282 | <0.0001 |
| Δ*v*CH2 (2850-2950, cm3) | 1.30 ±0.29 | 1.07 ±0.23 | n.s. |  | 0.47 ±0.10 | 0.60 ±0.09 | n.s. |
| Δ*v*symCH2 COG (cm-1) | -0.073 ±0.109 | -0.046 ±0.186 | n.s. |  | 0.329 ±0.236 | 0.0137 ±0.169 | n.s. |
| ΔEsters (1740, cm3) | -0.056 ±0.109 | 0.439 ±0.201 | 0.0107 |  | -0.066 ±0.053 | 0.127 ±0.060 | 0.0065 |
| ΔAmide I (1650, cm3) | -4.92 ±3.11 | 1.82 ±2.89 | 0.0081 |  | -2.59 ±3.43 | 7.06 ±4.03 | 0.0035 |
| ΔAmide II (1550, cm3) | -4.88 ±2.88 | 0.11 ±2.48 | 0.0179 |  | -2.94 ±3.25 | 5.58 ±3.99 | 0.0073 |
| ΔδCH2(1465, cm3) | 0.321 ±0.165 | 0.747 ±0.235 | 0.0038 |  | -0.059 ±0.096 | 0.618 ±0.128 | <0.0001 |
| ΔCarboxylate (1410, cm3) | -1.098 ±0.796 | -0.047 ±0.766 | 0.0201 |  | -0.845 ±0.947 | 1.396 ±1.176 | 0.0135 |
| ΔUrea (1175, cm3) | -0.504 ±0.383 | 0.751 ±0.412 | 0.0050 |  | -0.465 ±0.389 | 0.844 ±0.453 | 0.0013 |
| ΔLactate (1124, cm3) | 0.007 ±0.126 | 0.377 ±0.201 | 0.0039 |  | -0.156 ±0.120 | 0.202 ±0.115 | 0.0002 |

COG, Centre of gravity (peak location); AII, amide II; *v*CH2, symmetric and asymmetric stretching of the CH2 bond of lipids; δCH2, scissoring vibrations of the CH2 bond of lipids