SkinCareScience™

Peel Depth...What? How Deep? I Can't See it. Aghhh!!!

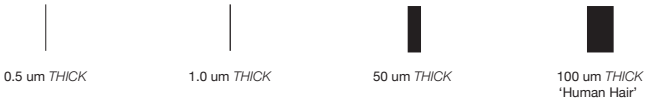
For many skin care professionals the above statement is normally what crosses their mind when told how deep a peel actually goes. The illustrations to the right try to give a better look into this mystery but actually what is needed is to go a little deeper and actually get the correct measurement of skin cells and then compare that size to something we can actually understand.

First, what is the unit of measurement? Cells of the skin are measured in microns or um. See following:

Corenocyte = 40um diameter and 0.5 um thick

What is a micron and how thick is it? A human hair is about 100 microns give or take. In fact, it actually varies from 40 um to as much as 150 um, but for this article 100 um will be used.

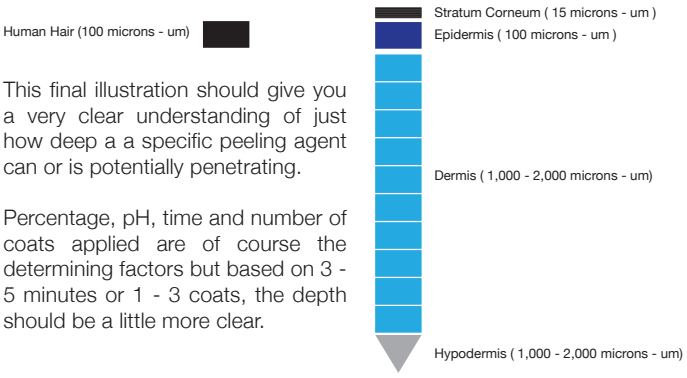
So now we can actually do some math and have a vision of what 'Thickness' we are actually trying to see.



Here is where it gets a little tougher to see how thin of a layer we are actually dealing with. The stratum corneum is roughly 15 layers thick or 10 - 20 um, depending on skin type and skin condition. So lets see what that looks like compared to our 100 um thick 'Human Hair':

Things should now start to come into view and make more sense vs just seeing the words 'Very Superficial' or 'Superficial'. But lets take it another step and see if there is additional clarity we can achieve with this 'Depth of Penetration' example.

The epidermis is 50 - 100 um or equal to a human hair. The dermis is 1 - 2 millimeters and the hypodermis is 1 - 2 millimeters. So lets draw this so we can see it. 1 Millimeter = 1000 microns (um)



This final illustration should give you a very clear understanding of just how deep a a specific peeling agent can or is potentially penetrating.

Percentage, pH, time and number of coats applied are of course the determining factors but based on 3 - 5 minutes or 1 - 3 coats, the depth should be a little more clear.

PEEL TYPES & DEPTH (1)

1 Very Superficial*
TCA 10% ▪ Glycolic acid 30 - 50%* ▪ Salicylic acid 20 - 30% ▪ Tretinoin 1%
(complete stratum corneum wounding)

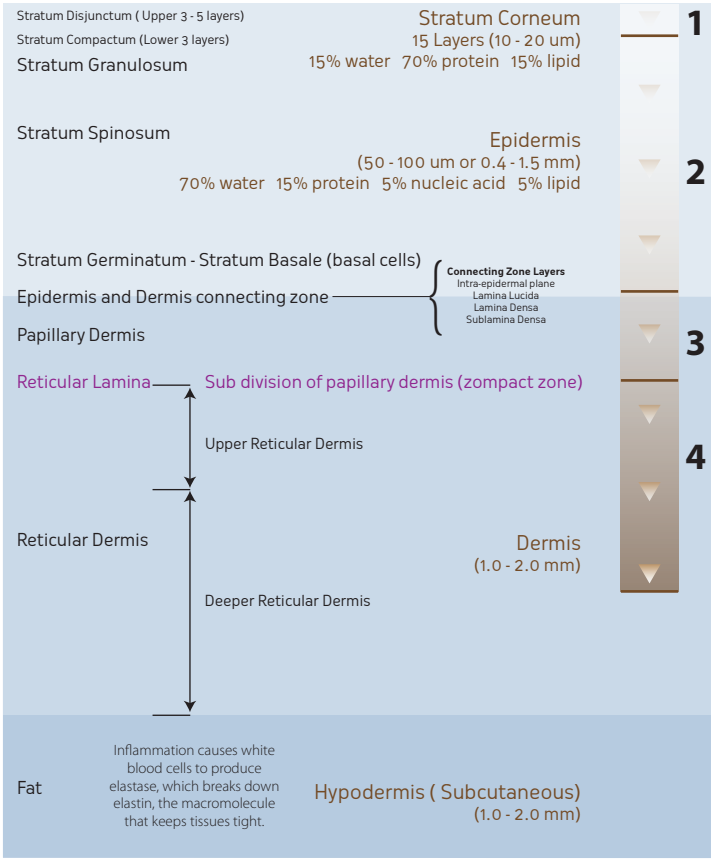
2 Superficial*
TCA 20 - 30% ▪ Glycolic acid 70%* ▪ Jessner's solution [1 - 3 coats],
(partial or complete wounding of epidermis)

3 Medium*
TCA 35-40% ▪ Glycolic acid 70%* plus 35% TCA
Jessner's solution plus 35% TCA ▪ Solid CO_2 plus TCA
(complete wounding of the epidermis and into upper reticular dermis)

4 Deep
Baker-Gordon phenol ▪ 88% phenol (unocculaded)
(complete wounding of epidermal tissue and into the mid reticular dermis)

*Careful consideration must be applied to the pH of the peel.

Even though this diagram is taken directly from a very popular and well known peel text book, I have always felt it was a little mis-leading. Changing it would not be appropriate but calling attention to the data at the left in comparison might be another way of saying: 'Very Superficial' should be left to AHA/BHA (3 - 5 minutes) and 'Superficial' is where TCA (5 - 10% 1- 3 coats) should start. There is no concrete way to know EXACTLY how deep a peel is going but the hope is that this document can increase your awareness to potential depth. Skin care and chemical peels is a feeling rather then an exact science...practice, practice and more practice! And always remember, slow and steady wins the post peel complication race.



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