

Chemical Exfoliation Mechanics and AHAs, BHAs, and Next-Gen PHAs — Engineering Review 2025

Por Cristiano Ricardo · Publicado em 20/09/2025

Technical dermocosmetic engineering lecture by Prof. Cristiano Ricardo on chemical exfoliation mechanics: ahas, bhas, and next-gen phas (Clinical Dermocosmetology & Exfoliation Science), featuring colorful schematic diagrams and clinical data.

Versão online e eventuais atualizações:

<https://cristianorichardo.com/post/chemical-exfoliation-mechanics-ahas-bhas-and-next-gen-phas-2025-09-20>

Clinical Dermocosmetology & Exfoliation Science · Cosmetic Engineering & Science

Chemical peeling agents loosen corneocyte desmosomes, accelerating turnover without mechanical abrasion.

Engineering Mechanism & Kinetic Flowchart

AHA (Glycolic)
MW: 76 Da (Small)
Rapid deep flux
Desmosome lysis

BHA (Salicylic)
Lipophilic molecule
Sebum miscible
Follicular clearing

PHA (Gluconolactone)
MW: 178 Da (Bulky)
Poly-hydroxy humectant
Zero erythema

Glycolic Acid & Calcium Ion Chelation

Glycolic acid disrupts cell-to-cell adhesion by chelating calcium ions required for cadherin-mediated desmosome function, triggering uniform desquamation and stimulating dermal fibroblast glycosaminoglycan synthesis.

Salicylic Acid Folliculotropism

As a lipophilic beta-hydroxy acid, salicylic acid penetrates lipid-filled pilosebaceous units, liquefying comedogenic keratin plugs while delivering intrinsic anti-inflammatory effects via prostaglandin inhibition.

Polyhydroxy Acids (PHAs) for Compromised Skin

Gluconolactone and Lactobionic Acid feature high molecular weights and multiple hydroxyl groups, absorbing atmospheric water while penetrating gently layer-by-layer without triggering neurosensory burning.

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