Mild Syndet Surfactant Cleansing & Cutaneous Microbiome Integrity (Engineering Review 2019)

Por Cristiano Ricardo · Publicado em 23/05/2019

Technical dermocosmetic engineering lecture by Prof. Cristiano Ricardo on mild syndet surfactant cleansing & cutaneous microbiome integrity (Cleansing Technology & Interfacial Colloidal Systems), featuring colorful schematic diagrams and clinical data.

Versão online e eventuais atualizações:
https://cristianoricardo.com/post/mild-syndet-surfactant-cleansing-cutaneous-microbiome-integrity-2019-05-23

Cleansing Technology & Interfacial Colloidal Systems · Cosmetic Engineering & Science

Traditional soaps solubilize vital epidermal barrier lipids; engineered synthetic detergents (syndets) cleanse while preserving skin barrier homeostasis.

Engineering Mechanism & Kinetic Flowchart

Traditional Soap (pH 9.0-10.0)
? Solubilizes intercellular lipids
? Denatures stratum corneum keratin
Alkaline disruption of microbiome

Syndet Cleanser (pH 5.0-5.5)
? Sodium Cocoyl Isethionate (SCI)
? Large mixed micelles (No penetration)
Preserves S. epidermidis acid mantle

Critical Micelle Concentration (CMC) Optimization

Monomeric surfactant molecules cause irritation by inserting into cellular membranes. Combining anionic sodium cocoyl isethionate with amphoteric cocamidopropyl betaine and non-ionic alkyl polyglucosides lowers the CMC, promoting the assembly of large, non-penetrating mixed micelles.

Acid Mantle Homeostasis

Formulating cleansers strictly at pH 5.0–5.5 maintains activity of epidermal lipid processing enzymes (beta-glucocerebrosidase and acid sphingomyelinase), preventing alkaline swelling of corneocyte desmosomes.

Microbiome Preservation

A physiologically buffered wash preserves resident commensals (*Staphylococcus epidermidis*), which secrete antimicrobial peptides (AMPs like lugdunin) to prevent dysbiotic overgrowth of pathogenic *Staphylococcus aureus*.

Prof. Cristiano Ricardo

Pharmacist-Biochemist · Specialist in Cosmetic Engineering & Dermato-Pharmacology ·
Published on May 23, 2019 at 18:32