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Glypure® GL: Slow-Release Glycolic Acid Delivery for Gentle, Effective Exfoliation

PureTech Scientific

www.puretechscientific.com

PRODUCT/SERVICE BACKGROUND INFORMATION

Glycolic acid (GA), the smallest alpha-hydroxy acid (MW 76), entered dermatology when Van Scott and Yu (1974) showed its keratolytic effect in hyperkeratotic skin. It is now a benchmark active for exfoliation, photoaging and uneven tone (Ditre 1996; Kornhauser 2010). GA loosens corneocyte cohesion in the stratum corneum, a mechanism attributed to calcium chelation in desmosomal adhesion, and stimulates collagen and hyaluronic acid synthesis (Wang 1999; Bernstein 2001). Its limits are equally documented: efficacy tracks free acid, so low pH and high dose drive stinging and irritation, and AHA use increases UV sensitivity (Kaidbey 2003), hence CIR use limits and FDA labeling.

WHAT IS THE COMPANY INTRODUCING TO THE MARKET/INDUSTRY?

PureTech Scientific, the former DuPont/Chemours glycolic acid business, introduces Glypure® GL, a slow-release GA technology based on glycolide (CAS 502-97-6), the anhydrous, non-acidic cyclic dimer of GA. Dissolved in dimethyl isosorbide (DMI) within an anhydrous vehicle, glycolide stays stable in the product, penetrates the stratum corneum and is converted to GA in situ as skin water vapor opens the ring. Ex vivo ATR-FTIR tape-stripping studies (TRI/Princeton) confirmed delivery to the outer stratum corneum, with depth tunable via glycolide and DMI levels; peak desquamation was reached at a lower dose than free GA (5% vs 7.5%).

HOW WILL THIS NEW PRODUCT/SERVICE IMPACT THE INDUSTRY (BENEFITS)?

Glypure® GL separates exfoliation from free-acid exposure. In 21-day cumulative irritation tests (n=20), 5% glycolide (open application) scored 0/1260, while aqueous GA (semi-occlusive) scored 17/1200 at 5%, pH 3.8 and 145/1200 at 10%, pH 3.2. A 50-subject RIPT rated 15% glycolide/85% DMI non-irritating and non-sensitizing. In a 4-week in-use study (n=10), a 4% glycolide eye stick reduced skin roughness by 30.6% and raised skin moisture by 19.3% (both $p<0.05$), with no adverse effects. Formulators gain a pH-independent, anhydrous route to gentle, daily AHA benefits for sensitive and eye-area products.