MICROSPONGE® Technology

MICROSPONGE® Technology is a proprietary system of microparticles that entrap pharmaceutical and cosmetic active ingredients to enhance their performance in topical dermatology products.

Widely regarded as a leading technology for addressing skin conditions such as acne, hyperpigmentation, actinic keratosis, aging and photo damage, HBS’ patented MICROSPONGE delivery system provides:

• Sustained release technology for reducing irritation of a wide range of APIs and other skin care actives thereby increasing patient/client compliance and results.

• Enhanced formulation stability ensuring long term product efficacy and extended shelf life.

• Superior skin feel and exceptional product esthetics.
THE SCIENCE BEHIND THE PERFORMANCE

MICROSPONGE® delivery systems are uniform, spherical polymer particles. Their high degree of cross-linking results in particles that are insoluble, inert, and of sufficient strength to stand up to the high shear commonly used in manufacturing of creams, lotions, and powders. Their characteristic feature is the capacity to adsorb or “load” a high degree of active materials into the particle and on to its surface. Its large capacity for entrapment of actives, up to three times its weight, differentiates MICROSPONGE products from other types of dermatological delivery systems.

While the active payload is protected in the formulation by the MICROSPONGE particle, it is delivered to skin via controlled diffusion. This sustained release of actives to skin over time is an extremely valuable tool to extend the efficacy and lessen the irritation commonly associated with powerful therapeutic agents such as Retinoids or Benzoyl Peroxide.

MICROSPONGE polymers possess the versatility to load a wide range of actives providing the benefits of enhanced product efficacy, mildness, tolerability, and extended wear to a wide range of skin therapies. The spherical nature of the MICROSPONGE particle, combined with its rigidity, enhances the skin feel and elegance of creams and lotions resulting in uncompromising performance.

HEALTH & BEAUTY SOLUTIONS’ PRODUCT PORTFOLIO

HBS offers a portfolio of white label dermatological products, based upon the MICROSPONGE Technology, that address a wide range of skin therapies including skin rejuvenation, acne, hyperpigmentation, firmness, dark circles, and moisturization. A full range of sunscreen products, critical for managing numerous skin therapies, are also available. All of the products are:

• Supported by clinical studies that characterize product performance and are the basis for the customer’s claim structure.
• Tested to provide the appropriate safety and toxicology profile for their intended use.
• Produced under cGMP conditions consistent with US FDA regulations.
• Stability tested under ICH guidelines to possess a two year shelf life.
• Excepted worldwide by regulatory agencies for use in dermatology products.
SKIN REJUVENATION

AGE DEFYING RETINOL CREAMS

HBS offers a line of retinol based cosmetic lotions with concentrations of 0.075%, 0.15%, 0.2%, 0.4% and 0.6% retinol in an elegant cream base.

The Age-Defying Retinol Cream with the patented MICROSPONGE® Sustained Release Delivery System is clinically proven to minimize the appearance of fine lines, wrinkles, surface roughness and age spots to give the skin a youthful glow.

CLINICALLY PROVEN RESULTS

The efficacy of the 0.15% retinol cream was demonstrated in a 12 week clinical study that evaluated the improvement of common skin aging manifestations. As determined by trained clinicians, significant improvement in skin smoothness, age spots, wrinkles and tone were noted. Moreover, in a self assessment, 100% of these panelists reported an improvement in appearance with 70% characterizing the difference as moderate to great. (Figure 1)

The irritation reduction benefit of the MICROSPONGE delivery system is a unique and market leveragable aspect of the technology. While known for its high level of performance in skin care products, concerns over the irritation potential of Retinol (and thereby patient tolerance) are ever-present. Figure 2 presents the results of a cumulative irritation study comparing the HBS 0.15% Retinol product to the global market leading Retinol product which employs the active at a 0.1% level in an unencapsulated form. The MICROSPONGE based system, containing 50% more Retinol, exhibited half the irritation potential compared to the leading brand.
SPF 15 GLYCOLIC ACID MOISTURIZER

The SPF 15 Glycolic Acid Lotion performs triple duty as an exfoliator and moisturizer to rejuvenate the skin, while helping to prevent future sun damage. Anti-aging alpha hydroxy acids slough off dead skin cells and increase skin’s clarity, while antioxidants and moisturizers penetrate and quench thirsty cells. A perfect day cream, this lightweight lotion also protects the skin with an SPF of 15. Daily use reduces the look of deep lines and wrinkles while hydrating, smoothing and clarifying the skin. HBS’ patented MICROSPONGE Technology provides sustained release of the Glycolic Acid resulting in an effective yet mild and well tolerated formula.

DARK CIRCLE EYE CREAM WITH VITAMIN K AND RETINOL

A proprietary formulation of Vitamin K plus Retinol in an elegant cream base.

When applied topically, Vitamin K diminishes dark circles under the eyes by penetrating damaged capillaries, stopping venous seepage and helping skin tissue to heal itself. HBS has combined this potent material with Retinol, a powerful anti-aging ingredient, to deliver a highly effective, multi-benefit treatment specifically formulated for the sensitive skin around the eyes. HBS’ eye cream is a unique combination therapy utilizing the synergistic effects and performance enhancement of these key active ingredients to also reduce puffiness and wrinkles. (Figure 3)

Figure 1

Clinically proven to minimize the appearance of fine lines, wrinkles, surface roughness and age spots.

Figure 2

Significant improvement in mildness compared to the leading global brand.

Figure 3

90% observed reduction in dark circles after 4 weeks (Clinical Grading)
80% observed reduction in 8 weeks (Self Assessment)
ACNE TREATMENT AND PREVENTION

HBS offers several effective yet gentle formulas for the treatment and prevention of acne. All of our anti-acne formulas are oil and alcohol free.

BENZOYL PEROXIDE LOTIONS

HBS offers prescription grade 2.5% and 5.0% Benzoyl Peroxide lotions that are highly effective yet mild and well tolerated. HBS’ Benzoyl Peroxide products are clinically proven to help clear existing blemishes and prevent new acne pimples from forming.

In a clinical study on patients with acne, the HBS 2.5% Benzoyl Peroxide formulation was found to reduce the number of inflammatory acne lesions (total of open and closed comedones) by 80% and was as effective as a commercial product that contained 10% Benzoyl Peroxide. (Figure 4) The 2.5% Benzoyl Peroxide lotion is also clinically proven to reduce the skin bacteria (P. Acnes) that plays a major role in the pathogenesis of acne. (Figure 5)

HBS’ unique delivery technology provides a sustained release of the active ingredient allowing for both an extended wear and a reduced irritation/mildness claim. Clinical studies have shown that products containing HBS’ entrapped Benzoyl Peroxide are significantly less irritating than existing commercial products while providing the desired efficacy. (Figure 6)

As an added benefit, HBS’ microparticles adsorb excess skin oil thereby enhancing the anti-acne performance of the product and enabling a fresh, non-shiny appearance.
2% SALICYLIC ACID ANTI-ACNE LOTION

HBS’ Salicylic Acid products are clinically proven to help clear existing blemishes and prevent new acne pimples and blackheads from forming by exfoliating and preventing clogged pores (Figure 7). Our unique MICROSPONGE delivery system provides a sustained release of the active ingredient allowing for both an extended wear and a reduced irritation/mildness claim. Also, the MICROSPONGE particles adsorb excess skin oil thereby enhancing the anti-acne performance of the product and enabling a matte, non-shiny appearance.

CLINICALLY PROVEN RESULTS

Performance of the Oil Control products was evaluated through clinical testing for the reduction of skin oil. Results demonstrated a significant reduction for 6 hours or more.

Panelist Self Evaluation:

• 80% reduction in oiliness in just 10 minutes
• 50% reduction in oiliness for over 4 hours
• 100% of panelists would buy product

Figure 7

% Reduction in Inflammatory Lesions

<table>
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Figure 6

Fourteen Day Cumulative Irritation Studies

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Figure 8

Oil Control Moisturizing Cloths Clinical Test Results

% Sebum Reduction vs. Control

UnDressed Skin
OC Cloth Treated Skin

0 2 4 6
Hours

-10 -6 -2 0 6
% Sebum Reduction

Benzoyl Peroxide entrapped using MICROSPONGE® Technology is significantly less irritating.
HYPERPIGMENTATION

SKIN BRIGHTENING CREAM

Reduce the visible discoloration of age spots and dark pigmentation on your face, hands or body with the most advanced skin brightening formula available. This Hydroquinone-free formula contains Kojic Dipalmitate plus Retinol in an elegant cream base.

Kojic Dipalmitate has been shown to be a highly effective skin brightening agent while retinol combats age spots, fine lines, wrinkles, photodamage, and other signs of aging. HBS’ Skin Brightening cream is a unique combination therapy utilizing the synergistic effects and performance enhancement of these key active ingredients while being mild and gentle to the skin.
CLINICAL PROVEN RESULTS

Photographic Results - HBS Product
Visible Light

Substantial improvement in skin lightening and discoloration observed under Visible, UVA, and Polarized light.

The performance of HBS’ Skin Brightening Cream was demonstrated in a 13 week clinical study. The charts below show the improvement in skin tone as measured by trained clinicians and via self-assessment.

Photographs under UVA light analyzed by two expert graders showed both formulas to be statistically equivalent.

Panelist self assessment judged the HBS product equivalent to the leading 2% Hydroquinone product.
SKIN FIRMING & TONING

SKIN FIRMING CREAM

HBS’ Firming Cream combines fat fighting Caffeine with Vitamin A in an extremely potent form. Retinol enables Caffeine to penetrate deeply into the cells where it actively boosts the metabolism of fat reduction.

Clinically proven to improve skin tone and elasticity, the HBS Firming Cream is a powerful combination therapy utilizing the synergistic effects of Caffeine and Retinol. It is an ideal product for neck and décolletage applications as well as to tone and firm arms and legs.

CLINICALLY PROVEN RESULTS

A 12 week clinical study evaluated the effects of HBS’ Firming Cream on parameters related to skin appearance, tone and firmness. Trained clinicians observed marked improvement in the following areas:

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<td>Fine Lines &amp; Wrinkles</td>
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<td>Texture</td>
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<td>Skin Tone</td>
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<td>Pore Size</td>
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<td>Dark Spots</td>
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<th>1 Week</th>
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• 39% Improvement in laxity as measured by instant stretch
• 33% Improvement in tautness
• 24% Improvement in elasticity
Increasingly, consumers are recognizing the importance of a broad spectrum sunscreen as an integral part of any skin care regimen/therapy.

HBS' sunscreen products deliver the anti-aging benefits of high SPF UVA/UVB protection in elegant, proprietary formulations. These products utilize HBS' patented SPF boosting technology to enhance the efficiency of chemical and mineral sunscreen actives. As a result, all of HBS' sunscreen formulas reduce the potential for irritation resulting from the use of high levels of chemical sunscreens commonly required to provide proper sun protection.

**PRODUCT OFFERINGS**

**SPF 55+ Very Water Resistant.** Available in lotion, spray (pump and continuous) and cloth formats in a variety of sizes. One of the most esthetically pleasing high SPF sunscreens available.

**SPF 30+ Daily Defense Mineral Sunscreen.** Utilizing natural emulsifiers, emollients, and antioxidants, this non-whitening formula provides excellent broad spectrum protection. Ideal for consumers desiring all natural sun protection.

**SPF 30+ Daily Defense Skin Protection.** A mineral based formula with broad spectrum performance, this system also provides defense against the elements resulting in an added measure of protection from environmental damage.

HBS can supply all of its products individually or as part of a targeted product kit or skin care regimen. In addition to these standard offerings, HBS can customize its white label line to provide you with a unique claim structure based upon selected proprietary ingredients.

With over 100 patents related to the company’s delivery and rheology technologies, and supported by talented research and quality organizations, HBS also engages in the development of novel products for a variety of skin care and sun protection needs. Through our Custom Solutions Program, we collaborate with our partner companies to develop products ranging from new NDA related dermatology products to OTC and cosmetic products.

For more information on what AMCOL Health & Beauty Solutions can do for you, please contact us at 1-800-261-8032 or www.microsponge.com