Beta-Glucan M™

Skin Repair/Firmness

Wound Healing

Anti-Oxidant Protection

Anti-Inflammatory

McKinley resources, inc.

Beta-Glucan M™

INCI Name: Sodium Carboxymethyl Beta-Glucan

CAS Number: 9050-93-5

Description:

Beta-Glucan M™ also called “Sodium Carboxymethyl Beta-Glucan” is the sodium salt of a carboxymethyl ether of Beta-Glucan. It is commonly used as a binding agent and rheological modifier in personal care formulations. It is known to soothe irritated skin, support the skin’s own antioxidant activity, protect the skin from environmental damage, and help the skin to retain moisture.

Technical Data:

Test/Properties:	Specification:
Appearance	white powder
Odor	Slight characteristic odor
pH, %	6.0 - 7.5
Ash, %	≤ 22.0
Substitution degree, %	60 - 80
Loss on drying, %	≤ 10.0
Heavy Metal, ppm	≤ 40
Arsenic, ppm	≤ 2
The number of colonies, CFU/g	≤ 500

Recommend Use Level: 0.04% to 0.4%

Cosmetic Applications:

Beta-Glucan M is recommended for anti-inflammatory, wound healing, skin repair/skin firming and anti-oxidant protection. The application of Beta Glucan M can be found in anti-aging products, facial moisturizers, toners, astringents and facial cleansers. Current uses include sunscreens, nail treatment, masks, shampoos and hand creams.

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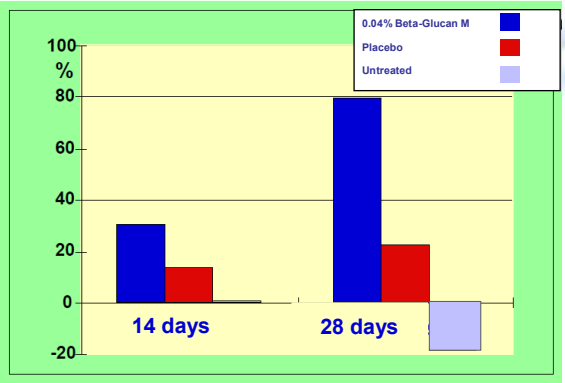
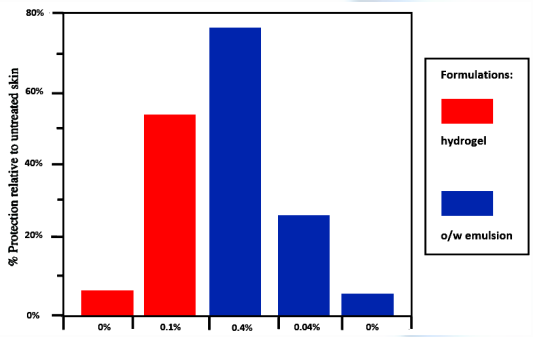
In-vivo testing with Beta-Glucan M™ to improve skin firmness[1]



The forearm skin of 10 volunteers (age 61-75) was treated with an emulsion containing 0.04% Beta-Glucan M and with a corresponding placebo, both over a period of 28 days. To simulate photoaging, the skin of the volunteers was irradiated twice a week at 0.75 MED. The skin firmness was measured with a cutometer on days 14 and 28.

The application of a placebo emulsion counteracted the photoaging process of the skin slightly. The incorporation of only 0.04% Beta-Glucan M into the same emulsion led to a 30% improvement in skin firmness on day 14 and 80% improvement in skin firmness on day 28. As a result, Beta Glucan M performed 60% better than the placebo and 100% better than the untreated area on day 28.

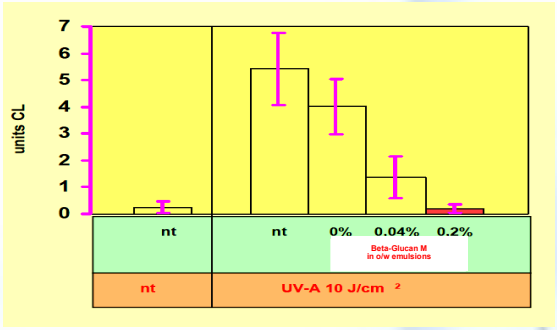
In-vivo testing with Beta-Glucan M™ for wound healing[2]



An enhancement of cell renewal rate could be observed in skin treated with formulations containing Beta-Glucan M. The renewal of the stratum corneum was measured by the gradual diminution of a fluorescence set at the onset of the experiment by dansyl chloride. The skin of 10 volunteers was treated for 2 weeks with an oil-in-water emulsion of 0.4% Beta-Glucan M.

As a result, at a concentration of 0.4% Beta-Glucan M in an oil-in-water emulsion, the renewal rate of the stratum corneum was enhanced by more than 30% compared to untreated skin.

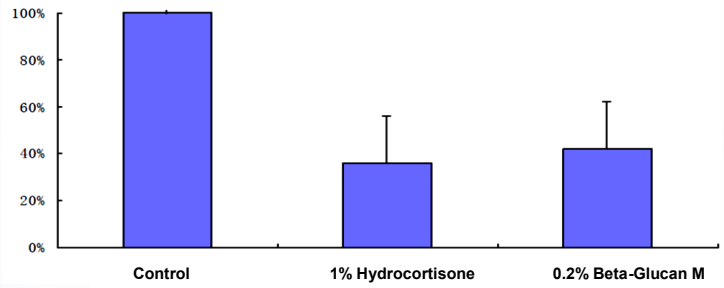
In-vivo testing with Beta-Glucan M™ to show anti-oxidant protection[1]



UV-A irradiation is known to induce the formation of squalene hydroperoxides in the skin. The skin of 10 volunteers was treated with 0.04% and 0.2% Beta-Glucan M over 5 days. Subsequently, a nontreated site (nt) and the two treated sites were irradiated with UV-A (10 J/cm2). Squalene hydroperoxide concentrations were measured as chemiluminescence units after lipid extractions from all skin test sites.

As measured, an almost complete protection against UV-A induced oxidation was observed at 0.2% Beta-Glucan M.

In-vivo testing with Beta-Glucan M™ for anti-inflammation



Beta-Glucan M has an anti-inflammatory effect which helps skin resist environmental stresses. Testing was conducted on 10 volunteers with severe erythema (skin peeling). The testing protocol consisted of three case studies: (1) untreated (control), (2) 1% Hydrocortisone, and (3) 0.2% Beta-Glucan M. Application was made immediately after the onset of severe erythema. Formulations were applied twice daily and measurements were taken with a Perimel 2PF Laser Doppler.

Statistically, 0.2% Beta-Glucan M has the same anti-inflammatory effect as 1% hydrocortisone.

(1) F. Zülli and F. Suter; Anti-Aging and Photoprotecting Effects of Carboxymethylated Glucan from Baker's Yeast, Mibelle AG Cosmetics, 5033 Buchs, Switzerland.

(2) F. Zülli and F. Suter, H. Biltz and H.P. Nissen; Improving skin function with CM-Glucan, a biological response modifier from yeast, International Journal of Cosmetic Science 20, 79—86 (1998); www.mib-bio.com

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