

Hydro-Matrix Rice PGA

Powerful Hyaluronic Acid Blend for Superior Skin Hydration



Hydro-Matrix Rice PGA

INCI : Glycerin (and) Water (and) Sodium Hyaluronate Crosspolymer (and) Propanediol (and) Hydrolyzed Rice Bran Extract (and) Polyglutamic Acid

CAS #: 56-81-5, 7732-18-5, 105524-32-1, 504-63-2, N/A, 25513-46-6

EC #: 200-289-5, 231-791-2, N/A, 207-997-3, N/A, N/A

A dermal delivery system of cross-linked Hyaluronic Acid, Polyglutamic Acid and Rice Peptides.

Keeping skin properly hydrated is essential for maintaining a healthy, vibrant complexion. As aging occurs, the skin loses key structural components especially with the epidermal/dermal junction and protective barrier. This results in dryness, irritation, inflammation and the creation of fine lines and wrinkles. Vantage™ offers a unique and effective technology intended to prevent, heal and treat dry skin. Hydro-Matrix Rice PGA helps in restoring the skin's natural protective barrier properties, enhancing softness and elasticity and improving skin tone and texture by creating a "pocket" designed to hold water and deliver peptides to boost collagen.

Hydrating

Moisture Retention

Multi-Collagen Booster

Restructuring

Active Delivery Network

Soothing, Soft Skin Feel

Water is absolutely essential for the normal functioning of the skin and especially its outer layer, the stratum corneum. Loss of water from the skin must be carefully regulated, a function dependent on the complex nature of the stratum corneum. Hyaluronic acid, which has been regarded mainly as a dermal component, is also found in the epidermis and is important for maintaining normal stratum corneum structure and epidermal barrier function. Additionally, the elderly have drier skin with less elasticity and more wrinkles. Studies have demonstrated that drier skin shows more wrinkles and deeper furrows, with wider intervals.¹

Recommended applications



Skin Care



Hair Treatment
Leave On



REFERENCE
1.J. Choi, et. al., The influences of skin visco-elasticity, hydration level and aging on the formation of wrinkles: a comprehensive and objective approach, Skin Research & Technology, June

 Vantage

What is Hydro-Matrix Rice PGA?

Hydro-Matrix Rice PGA (HMRP) is a liquid dermal delivery network of three components



Hyaluronic Acid (HA)

- Cross-linked form of HA with 5X the water binding capacity of regular HA.
- Non-equilibrium form with tightly bound water, that forms a film on the skin and continuously delivers bound water.



Polyglutamic Acid (PGA)

- Biopolymer discovered in jellyfish that prevents dehydration in water. PGA used in HMRP is derived by fermentation
- Acts in an extrinsic (humectant) and intrinsic modes (production of natural moisturizing factor) thus providing immediate and long-term moisturizing effects.



Rice Bran Peptides

- Rice bran peptides are known for their nutritional benefit due to antioxidant and anti-microbial activities.
- Recent studies have also demonstrated their skin lightening properties as well as collagen boosting efficacy.

What does Hydro-Matrix Rice PGA do?

With cross-linked Hyaluronic Acid as a key component of Hydro-Matrix Rice PGA, this multi-functional active ingredient provides extended surface hydration, free radical scavenging, soft skin feel, multi-collagen boost, and anti-aging benefits.

The waterbinding capacity of cross-linked Hyaluronic Acid is 5x greater than high molecular weight Hyaluronic Acid (Figure 1) to provide long term moisturization to treat dry skin. The three dimensional structure (Figure 2) provides a network to hold and then deliver the Rice Peptides and Polyglutamic Acid to the skin. This unique delivery system is ideal for use where moisturizing, healing and anti-aging properties are required.

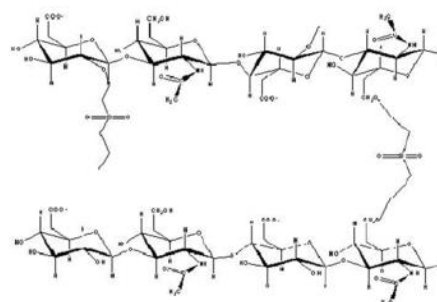
γ -Polyglutamic acid is a biopolymer originally discovered in jellyfish to prevent tissue dehydration in salt water. γ - Polyglutamic acid imparts superior skin hydration through both extrinsic (humectant) and intrinsic modes (production of natural moisturizing factor) of action that can provide immediate and long-term moisturizing effects.

Figure 1

Sample	Water Content Wc g/g
Hyaluronic Acid	3.0
Crosslinked Hyaluronic Acid	15.75

Figure 2

Sodium Hyaluronate Crosspolymer



Creates a hydrating 3-D scaffold

Gene array studies

Hydro-Matrix Rice PGA may possess multi-collagen boosting activity as well as anti-aging benefits

Symbol	Fold Regulation	Protein information
COL15A1	2.06	Collagen XV, a fibril-associated collagen with interrupted triple helix important for tensile strength of the skin, localizes to the dermal-epidermal junctions
COL1A1	1.79	Type I collagen is the most abundant proteinaceous ingredient of ECM in the skin
COL6A2	2.21	Type VI collagen, a structural element of ECM juxtaposing blood vessels and basement membrane. It forms extensive micro-fibrillar networks, which intercalate between type I collagen fibers, playing major roles in mechanical integrity of skin.
COL7A1	2.37	Type VII collagen fibril is restricted to the basement zone beneath stratified squamous epithelia. It functions as an anchoring fibril between epithelia and the underlying stroma.
COL8A1	7.18	Collagen 8A – a short chain collagen and major component of the basement membrane.
SPARC	1.92	SPARC is a matrix-associated protein, which plays a role in wound repair by promoting fibroblast migration, known to increase type I collagen production.
THBS3	2.54	Thrombospondin family members are adhesive glycoproteins that mediate cell-to-cell and cell-to-matrix interactions in tissue remodeling and in wound healing.
TIMP2	2.06	TIMP2 is an inhibitor of matrix metalloproteinases
TNC	1.79	Tenascin-C is an ECM protein, & may be associated with scarless healing.

Method

Effect of HMRP (0.5%) vs. untreated on Fibroblasts cells by real-time quantitative PCR with BioRad iCycler iQ Detection System 24 hour incubation.

Formulation guidelines

Hydro-Matrix Rice PGA can be used in skin care, hair care, and color cosmetic formulations. In emulsions, it can be easily added with medium propeller mixing after phase combination below 45°C during the cooling phase. Hydro-Matrix Rice PGA is not compatible with cationic substances.

The ideal pH range for systems containing Hydro-Matrix Rice PGA is between 4.0-8.0. In skin care, Hydro-Matrix Rice PGA is recommended for use in products for enhanced hydration and moisturization of the skin. In hair care, Hydro-Matrix Rice PGA is recommended for use in leave-on treatment products such as hair masks.



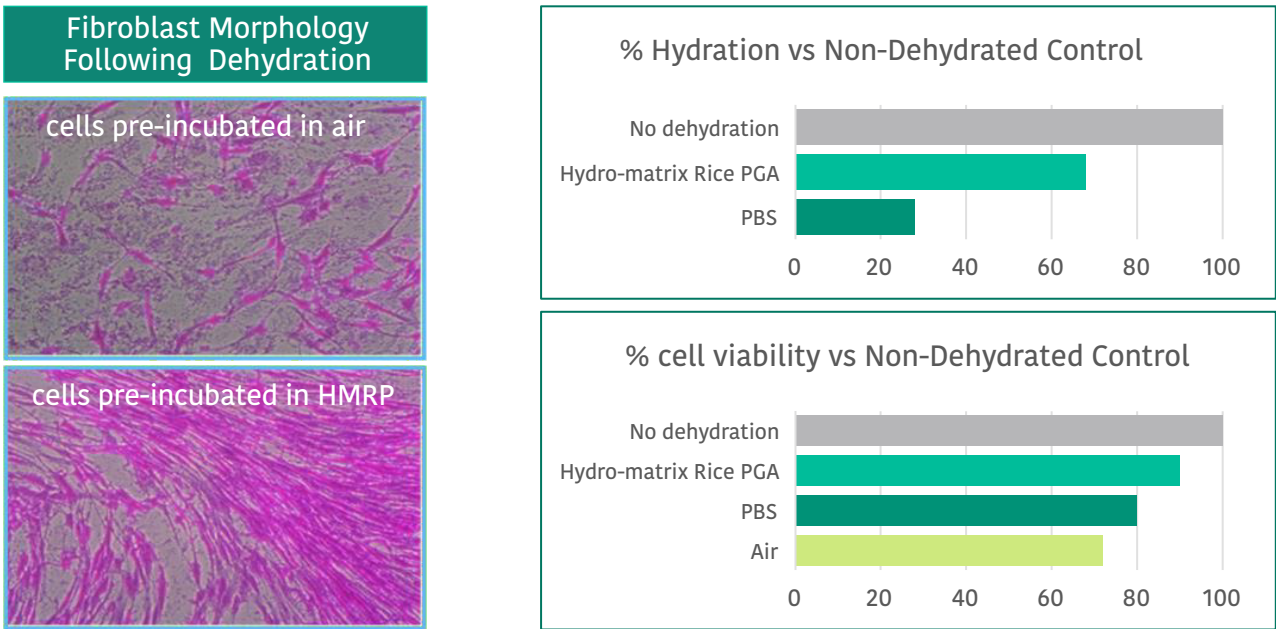
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Appearance @25°C	Light brown liquid
Odor	Characteristic
pH	3.80-4.20
Recommended Use Level	3-10%
Regulatory Details	PCPC, China IECIC 2015 (ISO16128: 99%)
Preservative System: Sodium Benzoate	

Protection against dehydration

Hydro-Matrix Rice PGA protects cells from dehydration-induced damage and resulted in a 67.4% improvement of hydration levels



Fibroblasts cell cultures were grown in standard culture medium and then exposed to experimental conditions of medium, 0.5% HMRP, or PBS (Phosphate Buffer Saline) for 5 mins

After media is remove cells were allowed to air dry for 15 mins (dehydration step)

Cell medium was added and allowed to recover for 24 hours

Following parameters were evaluated

- Cellular morphology
- Cell metabolism by MTT