

# Hydrate EFX™

## Broad spectrum hyaluronic acid complex



### Hydrate EFX™

INCI : Water (and) Sodium Hyaluronate (and) Sodium Hyaluronate Crosspolymer

CAS #: 7732-18-5, 9067-32-7, 105524-32-1/142975-50-0

EC #: 231-791-2, N/A, N/A / N/A

**5x the water binding capacity of hyaluronic acid**

**Broad spectrum sodium hyaluronate composition**

**Free Radical Scavenger**

### Recommended applications



Skin Care



Sun Care



Liquid Makeup Foundations



Leave-in Hair Conditioners & Styling Aids



Body Washes

An optimized combination of hyaluronic acids with different molecular weights to create a full spectrum complex with short- and long-term effects on skin hydration.

Hyaluronic acid (HA) is a naturally-occurring polyanionic polysaccharide. It is present in the intercellular domains of connective tissues and especially in the skin. Because of its unique hygroscopic properties, HA plays a key role in protecting and stabilizing the skin at the cellular level. Although “hyaluronic acid” is the name commonly used for this substance, the polyanionic “hyaluronate” is the biological form found in nature. Because of its ability to hold water, HA is an efficient skin moisturizer and plays a significant role in skin hydration and lubrication.

HA exists at different molecular weights. This molecular weight will dictate the behavior of HA on skin and its mechanism of action. Short molecular HA has a proclivity for skin penetration, which can create some allergic reaction on people with sensitive skin. Larger molecular weight HA acts more on the outer layer of the epidermis, where it attracts water and binds for moisturization retention. Finally, crosslinked HA, considered “infinite” molecular weight HA. Vantage™ uses an exclusive HA gel with high gel domains that tightly bind water and act as water reservoirs that deliver water over time.

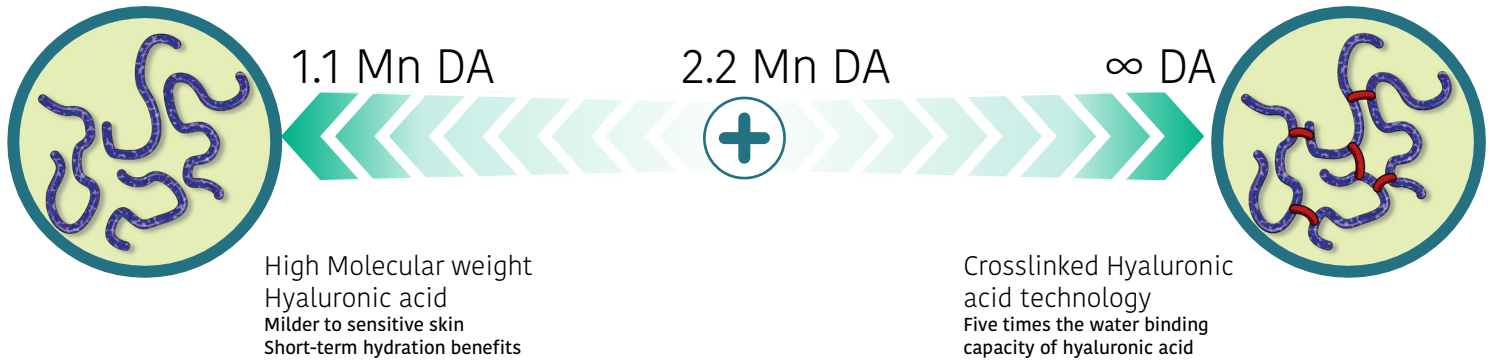
Hydrate EFX™ combines high molecular weight HA and crosslinked HA in order to create a broad-spectrum complex that regulate the amount of water being diffused and retained on skin surface based on its need.



Vantage

# Broad-spectrum Hyaluronic acid complex

Vantage™ has created an optimized combination of different molecular weight hyaluronic acid to create a full spectrum complex with short- and long-term effects on skin hydration. It does not contain low molecular weight HA to reduce adverse reaction on sensitive skin.

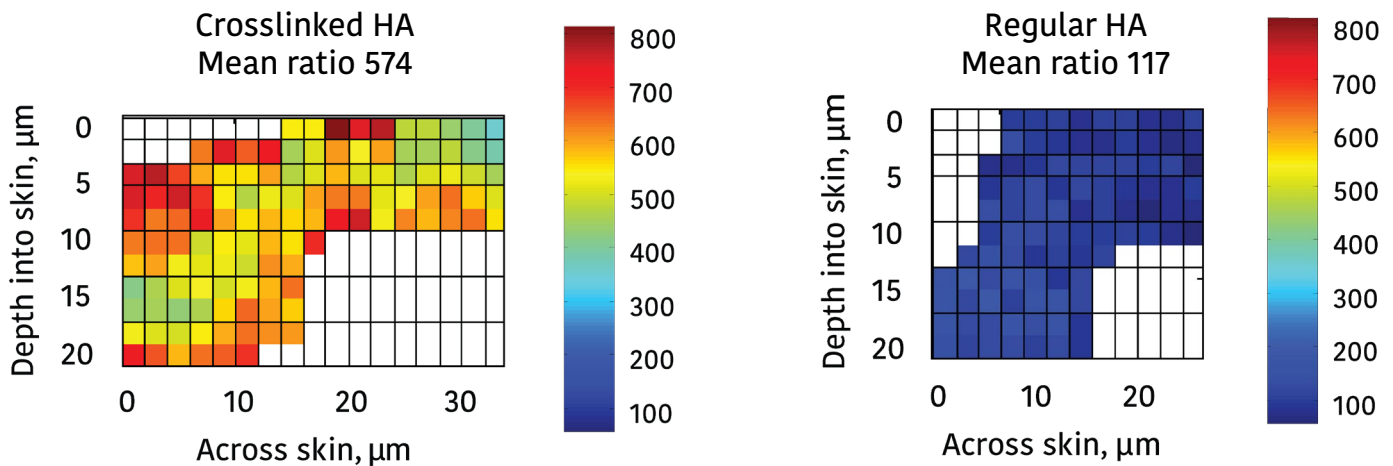


Focus on crosslinked hyaluronic acid:

The crosslinked hyaluronic acid technology used in Hydrate EFX™ is a form of Hylan® B - used in pharmaceutical applications. Hylan® B was invented by Genzyme and used in intradermal injection of Hylaform® for soft tissue augmentation for correction of wrinkles and scars. Genzyme's Synvisc®, a treatment for osteoarthritis is made of Hylan® B / Hylan® A mixture, used as an injection into the knee. Vantage has acquired global distribution rights for this crosslinked hyaluronic acid technology cosmetic applications (from Luomed, Inc)

## Moisture retention analysis in the stratum corneum

Five times more moisture in Stratum Corneum after 24hrs (Crosslink HA vs. regular HA)



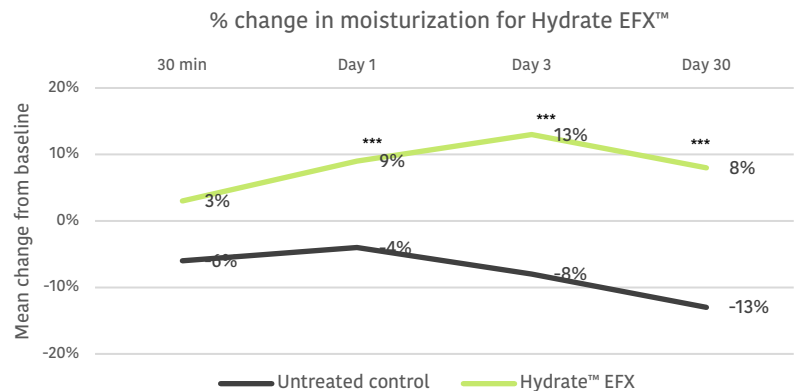
Results of an ex vivo skin moisturization experiment; Excised human skin was treated with crosslinked HA or regular HA, both at 0.1% solids in D2O, and held at 55% relative humidity for 24 hours. Stratum corneum water (D2O) content was then measured by confocal Raman spectroscopy. The values and colors indicate water (D2O) content in two dimensions (depth into and across the skin sample). Crosslinked HA treated skin had 5x more stratum corneum moisture than the regular HA acid-treated skin.

# Skin moisturization improvement

A clinical evaluation of Hydrate EFX™ was conducted on a panel of 34 subjects, age 45 to 60 year-old. The panelists were selected because they suffered from skin dryness. The study lasted 30 days, with data points taken at 30 min, day 1 and day 3 for short-term effects and at day 30 for long-term effects. Hydrate EFX™ was used at 3% in a O/W emulsion.

The first evaluation of skin moisturization was performed using a Corneometer® CM 825.

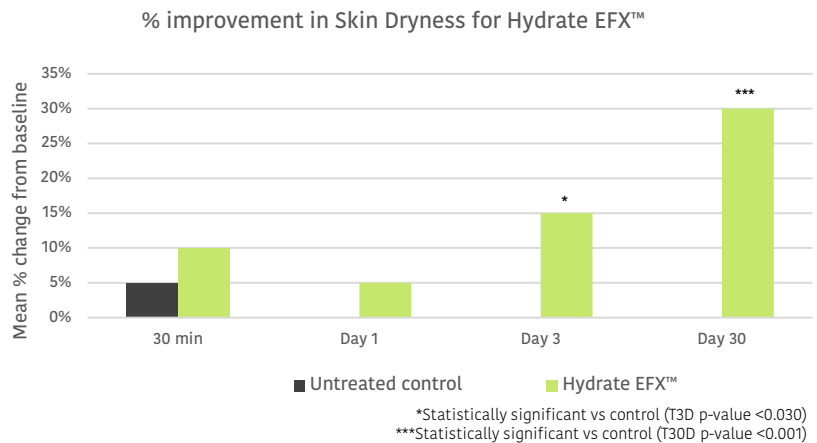
Hydrate EFX™ demonstrated a statistically significant increase in skin hydration after 1, 3 and 30 days of product use when compared to untreated control.



# Skin dryness reduction

During the same study, a visual assessment of skin dryness on the outer side of the lower legs was performed by a trained expert grader.

Skin treated with Hydrate EFX™ saw a significant reduction in skin dryness scores and a statistically significant improvement in visual skin dryness at all time points compared to untreated control.



# Hydrate EFX™

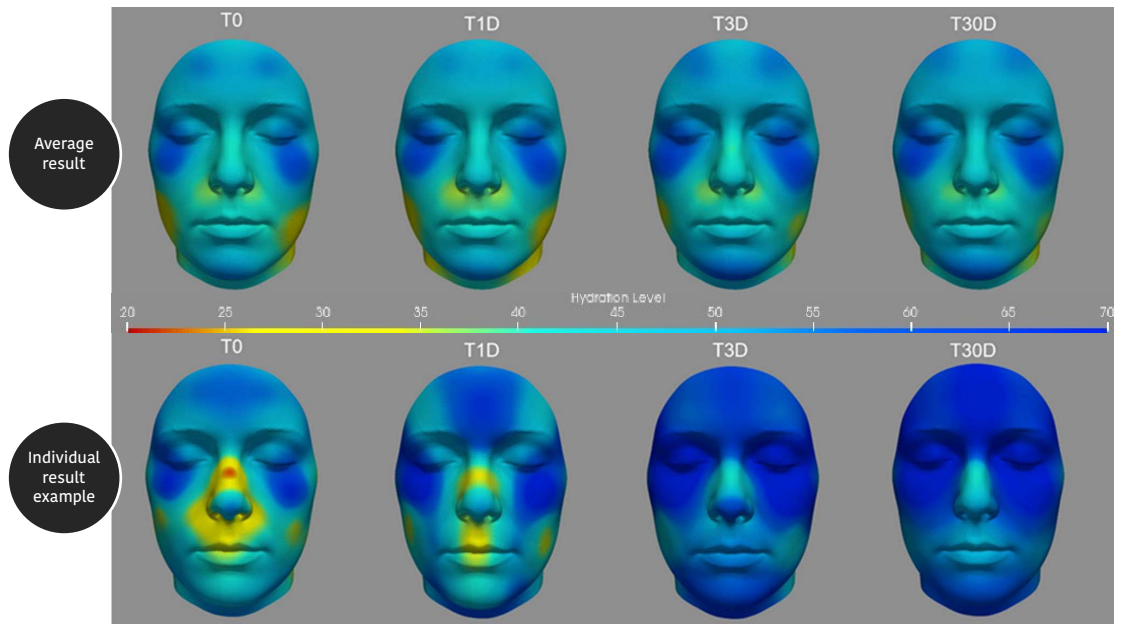
## Broad spectrum hyaluronic acid complex

Appearance	Colorless fluid gel
Odor	None
Color	Colorless
Solubility	Soluble in Water
Preservative	Pentylene Glycol, Ethylhexylglycerin
Recommended Use Level	1-5%

## Face moisture mapping

During the same study, Newton Hydration Mapping was used to analyze the effect of crosslinked HA on facial moisture at different time points. The blue shades represent areas of higher moisture, and the red shades represent areas of lower moisture.

Moisture mapping confirms that Crosslinked HA visibly improves the overall face moisturization of panelists with dry skin



## Formulation guidelines

### Incorporation

Hydrate EFX™ consists of hyaluronic acid dispersed into gel phase of crosslinked hyaluronic acid that can be used in various types of formulations:

- **Emulsions:** After the two phases have been combined and the emulsion has formed, cool the batch to 40 °C. Slowly mix in the Hydrate EFX™ with propeller agitation and continue cooling.
- **Gel based formulations using Hydrillien 9 and/or Carbomer:** after polymer dispersion at 75 °C - 85 °C, add desired ingredients, then add neutralizer if required: triethanolamine, NaOH, or AMP-95. When batch reaches 45 °C, Hydrate EFX™ with propeller agitation and continued cooling
- **Hydrophobic substances:** To incorporate Hydrate EFX™ directly 'into' hydrophobic materials, use an emulsifier or solubilizer with the hydrophobic substance, and then add Hydrate EFX™. For example: mix polysorbate 20 (or 85) with vitamin E, allow to dissolve, add Hydrate EFX™ and mix until uniform.
- If it is desired to add Hydrate EFX™ to 'finished formulations', in most cases, Hydrate EFX™ may be added directly to the finished formulation with low shear mixing agitation.