



# HYLO<sup>®</sup>-DUAL

10 ml Eye Drops

## The dual mode of action

High quality hyaluronic acid and ectoine for dry eyes accompanied by

- A lipid phase disturbance and
- Symptoms of inflammation





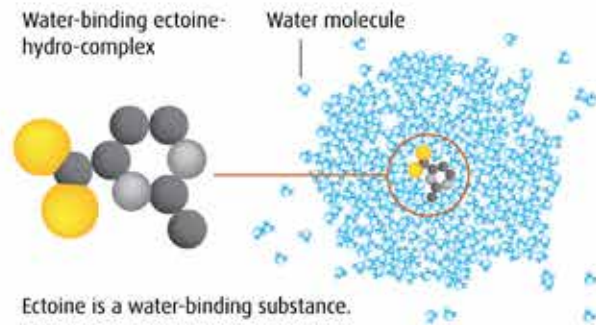
# HYLO<sup>®</sup>-DUAL: The dual mode of action

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## Why Ectoine?

The ectoine contained in **HYLO<sup>®</sup>-DUAL** is isolated from microorganisms that live under extreme conditions, e.g. under extreme dryness or in salt lakes

### Effect of ectoine: Influencing the structure of the surrounding water



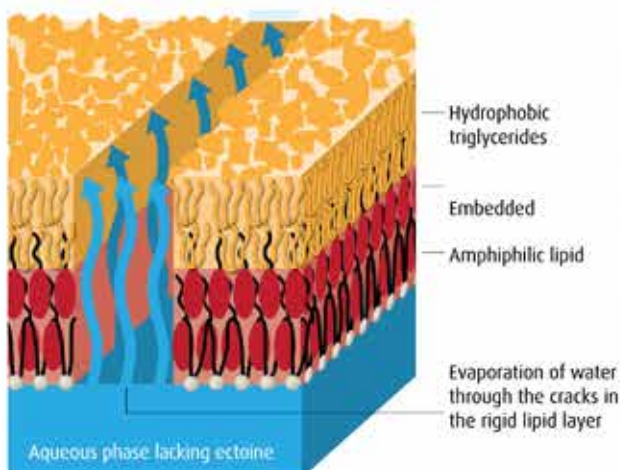
Ectoine is a water-binding substance.

Ectoine:

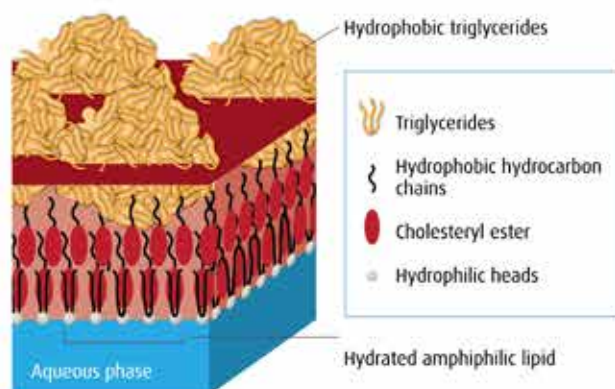
- increases the number of water molecules in its immediate vicinity
- increases the binding between neighbouring water molecules
- therefore strengthens the water binding to itself

Ectoine stabilises the lipid phase of the tear film, which protects against an excessive evaporation of the lacrimal fluid

### Unstable lipid phase of the ectoine-lacking tear film



### Stabilised ectoine-containing lipid layer



Under the influence of ectoine the rigid lipid phase is transformed into an elastic layer. During a blink this layer is more easily compressed and spread across the ocular surface without being broken.



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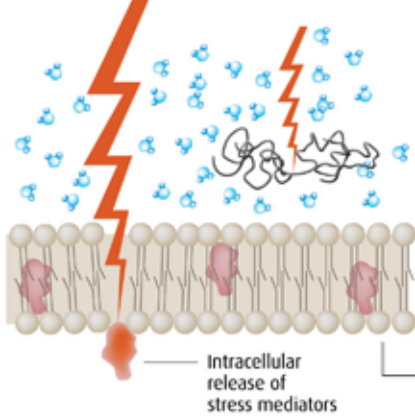
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Ectoine causes more water to bind to the membrane, for this reason it protects cells from inflammatory reactions<sup>3</sup>

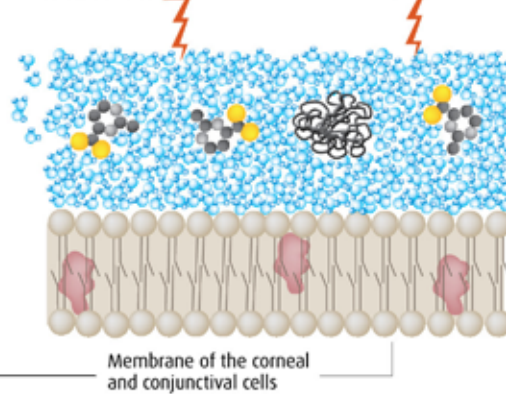
Hence, ectoine reduces inflammatory processes<sup>4</sup>

## Effect of ectoine: Anti-inflammatory properties

Without ectoine



With ectoine



Water molecule



Ectoine



Protein



Lipid bilayer



Stress factor



Stress mediator

The high quality hyaluronic acid used in **HYLO<sup>®</sup>-DUAL** enables a uniform, stable and particularly long-lasting lubrication of the ocular surface

- ▶ **Stabilisation of the tear film lipid layer**
- ▶ **Ectoine-hydro-complex relieves symptoms associated with inflammation and allergy**
- ▶ **Cost effective due to minimum of 300 drops/10ml**
- ▶ **Lubrication through osmoprotection**
- ▶ **Preservative and phosphate free formulation**
- ▶ **Compatible with contact lenses**

**6** month shelf life after opening



## Prescribing Information:

### What is HYLO®-DUAL?

**HYLO®-DUAL** is a sterile preservative-free solution containing 0.5 mg/ml sodium hyaluronate, 20 mg/ml ectoine, a borate buffer and water.

### What is HYLO®-DUAL used for?

**HYLO®-DUAL** moisturizes cornea and conjunctiva and protects against excessive evaporation of tears. This stabilisation of tears relieves the inflammatory symptoms of irritated eyes as well as in case of allergies. The itching and burning sensation of the eyes disappears.

### When should HYLO®-DUAL be used?

Burning, itching, tearing, foreign body sensation or the sensation of dry eyes are symptoms of an irritated eye. Frequently this is a symptom that the eye is not sufficiently provided with humidity. Another cause is hypersensitivities against certain substances (e.g. pollen, animal hair or house dust), so called allergies. As an allergy shows similar symptoms it is difficult to differentiate between a dry or an allergic eye. In these cases **HYLO®-DUAL** is advantageous because of the dual mode of action of sodium hyaluronate and ectoine.

### How should HYLO®-DUAL be applied?

Only use **HYLO®-DUAL** if the sealing of the folding carton was intact before the first use. Remove cap before use. Before the first application please turn the **HYLO®-DUAL** bottle with its tip down and press onto the bottom of the bottle until the first drop appears at the nozzle. Now the bottle is ready for further use. Hold the bottle upside down with the thumb on the shoulder of the bottle and the other fingers on the bottom of the bottle. Support the hand holding the **HYLO®-DUAL** bottle as shown with the other hand. Lean your head back slightly, gently pull down your lower eyelid and apply a strong and quick pressure on the middle of bottom of the bottle. This activates the mechanism for the release of one drop. Because of the special COMOD valve system, size and speed of each drop are the same independently on how much pressure is applied. Slowly close your eyes to allow the fluid to spread evenly on the eye surface. Replace cap immediately after use. Take care that the dropper tip is dry. When applying the fluid please avoid any contact between the tip of the bottle and your eye or your skin. Each bottle releases 10 ml of solution which is the equivalent of approximately 300 drops. For technical reasons a small amount remains in the bottle at the end of exhaustion. **HYLO®-DUAL** can be used for an unlimited period of time. Only one person should be treated with one particular bottle of **HYLO®-DUAL**. If you use any other eye drops there should be at least 30 minutes between the applications and **HYLO®-DUAL** should always be used last. Eye ointments should, however, always be administered after using **HYLO®-DUAL**. Because it is preservative-free, **HYLO®-DUAL** is well tolerated even when used over a longer period of time. In very rare cases hypersensitive reactions like burning or excessive tearing have been reported which stopped immediately when the use of **HYLO®-DUAL** was discontinued. **HYLO®-DUAL** can be used while wearing contact lenses. To avoid incompatibility reactions that are possible due to interactions between contact lens care products and **HYLO®-DUAL**, we recommend to wait for about 30 minutes with the application of the eye drops after inserting contact lenses. There are no findings about the use of **HYLO®-DUAL** during pregnancy and lactation. Please ask your doctor or pharmacist before you use **HYLO®-DUAL** if you are pregnant, could be pregnant or are breast-feeding.

### How often and for how long can you use HYLO®-DUAL?

**HYLO®-DUAL** should be used according to the instructions given by your doctor. Generally adults and children 6 years and older instil one drop of **HYLO®-DUAL** three times a day into the conjunctival sac of each eye. If you apply **HYLO®-DUAL** more frequently (e.g. more than 10 times per day) or suffer from more severe complaints you should consult an ophthalmologist in regular intervals. **HYLO®-DUAL** is suitable for long-term treatment. However – as in all persisting symptoms – you should consult your ophthalmologist if your complaints do not improve e. g. within two weeks.

### When should you not use HYLO®-DUAL?

**HYLO®-DUAL** should not be used if you are hypersensitive to one of the ingredients. What you need to know about storing **HYLO®-DUAL**? Store below 25°C. **HYLO®-DUAL** can be used for 6 months after opening. Do not use beyond the expiry date ( ). The following package sizes are available: 10 ml of eye drops.

**Keep out of the reach of children.**

1. Harishchandra, R.K. et al., 2010
2. Dwivedi, M. et al., 2014
3. Galinski, E.A., 1983; Galinski, E.A. et al., 1985; Lippert K. and Galinski, E.A., 1992; Bünge, J. et al., 2001; Galinski, E.A. et al., 1997
4. Bünge, J. and Driller, H., 2004

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