

MAINTENANCE SYSTEM FOR PERMEABLE CONTACT LENSES

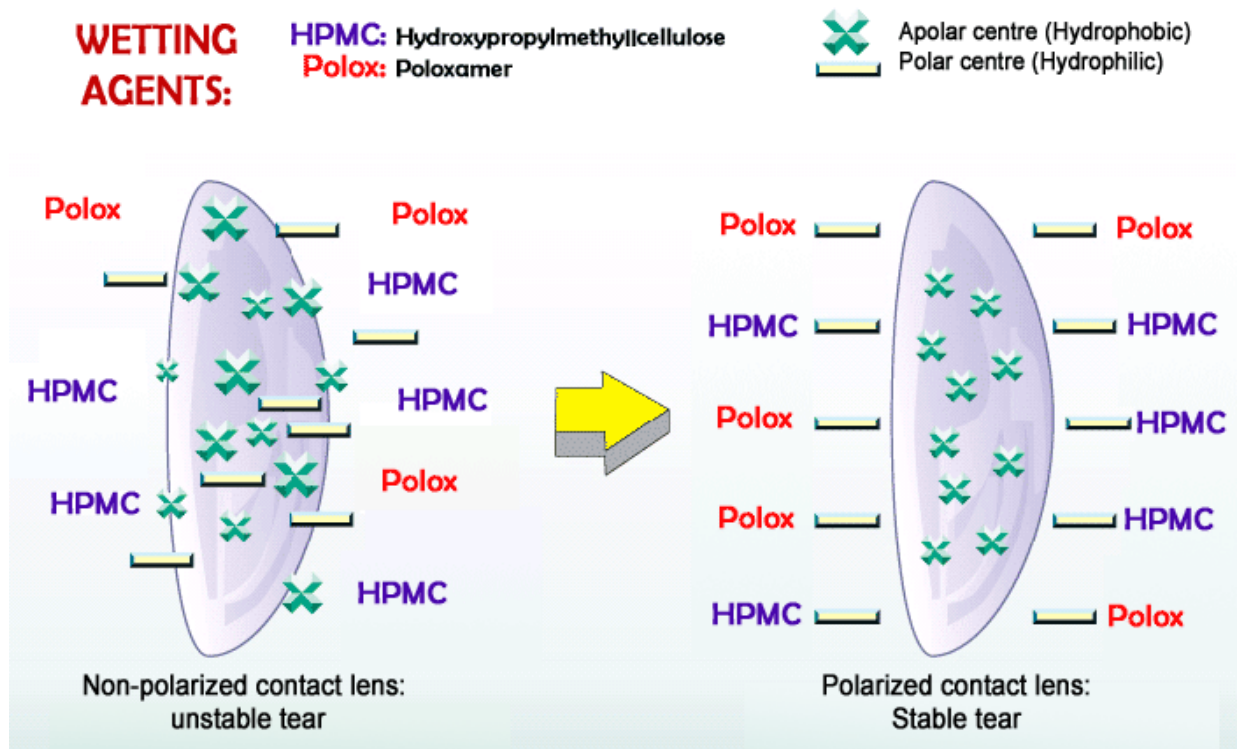
This system has two components: conditioner and cleaner.

CONDITIONER

This colourless and totally transparent liquid wets and disinfects contact lenses, and is used for soaking them overnight, after they have been cleaned with the cleaner. At the same time it acts as a lubricant, so when you put the lenses in your eyes this product keeps rubbing to a minimum. It is an isotonic saline solution and is buffered to pH 7.2-7.6 with boric acid buffer, and also contains wetting and lubricating agents: poloxamer and HPMC. The product is preserved with Edta and polyhexanide.

If you do not use a good wetting agent, fatty deposits will build up on the contact lens and the lens hydrophily will be reduced, so the use of a wetter-soaker is just as necessary as a surface cleaner. Two processes take place while the lenses are in the soaker: wetting and disinfection.

Figure 1: Wetting action of the conditioner.



The lens polymer consists of hydrophilic or polar centres and hydrophobic or apolar (water-repelling) centres. In order for the tear to be stable on the contact lens, the polar centres must be oriented towards the surface of the lens whereas the hydrophobic centres, on the contrary, must stabilize inside the lens. This is achieved by the action of components with wetting properties such as poloxamer and HPMC, which interact electrostatically with the surface of the lens and "pull outwards" from the polar centres.

The wetting must be accompanied by disinfection that reduces the levels of contamination to the minimum. The bacteriological tests performed by means of the challenge test demonstrate that the product guarantees disinfection within 6 hours.

Irritability clinical tests performed in rabbits' eyes demonstrate that the preparation does not irritate the cornea or the conjunctiva.

Analyses of the contact lenses most widely used on the market demonstrate that daily cleaning of permeable lenses with the cleaner, and wetting and disinfection with the conditioner soaker is an all-round, easy-to-use system that requires no enzymatic cleaners.

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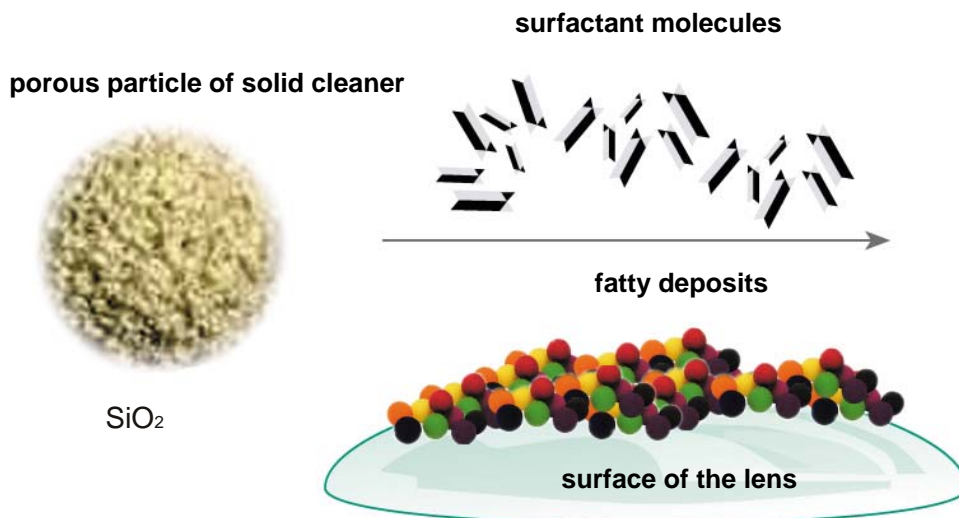
CLEANER

A white-coloured suspension. Its cleaning strength is the result of the joint action of a powerful surface-active agent (Lauryl ether sulphate) and a micro-dispersed solid with a large specific surface ($400 \text{ m}^2/\text{g}$) that allows it to retain on its surface the deposits that are pulled free when you mechanically rub the lens with your finger. The product is buffered with boric acid-borax and preserved with Edta and polyhexanide, despite the fact that its low fungi and bacteria growth capacity has been well proven.

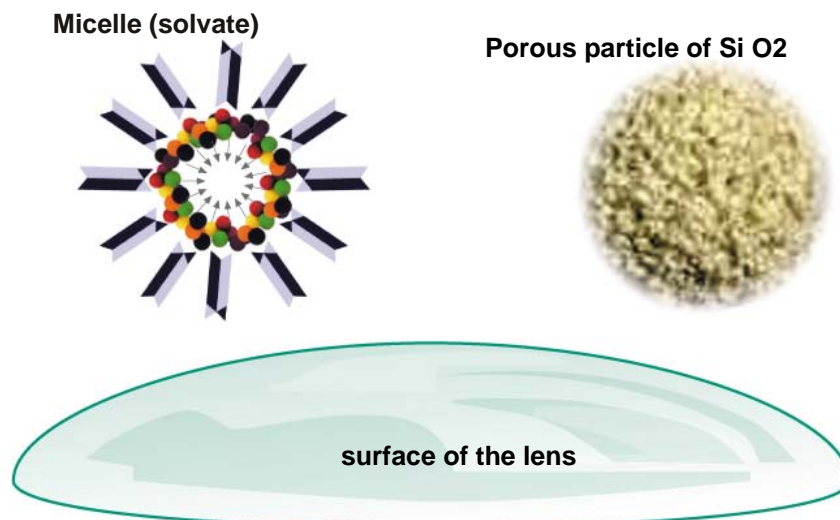
The following is an outline of how the cleaner works:

1. PULLING-FREE ---> 2. SOLVATION ---> 3. ADSORPTION

Pulling-free. When you mechanically rub the lens with your finger, the dissolved solid moves over the surface of the contact lens, pulling the fatty and protein deposits free from the lens.



Solvation. The surface-active agent (wetting agent) interacts with the hydrophobic part of the deposit, leading to a solvate or cluster from which it cannot escape and which is solubilized in the aqueous medium by hydrogen bridge-type electrostatic forces



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Adsorption. These solubilized solvates are swallowed up by the solid particles in a physico-chemical surface absorption process.

