

Introducing Cleadew Advanced Care Systems



Figure 1 Strong disinfectant efficacy

For more than a decade, there has been little or no innovation in contact lens care. The UK market is currently dominated by multipurpose solutions, many using a single disinfectant formulation.

Cleadew is a unique new range of contact lens care products manufactured by Ophtecs in Japan, and exclusively available from Positive Impact. Ophtecs has pioneered harnessing the powerful disinfecting efficacy of povidone-iodine (PVP-I) for contact lens care – bringing a novel alternative for contact lens practitioners to support their patients in keeping their lenses safe and comfortable.

The Cleadew range also includes unique multipurpose solution formulations and has a product for all lens types, including scleral lenses. It is also worth noting that the entire Cleadew product range meets the forthcoming Medical Device Regulation (MDR) that replaces the current Medical Device Directive (MDD). MDR expands on the MDD by increasing scrutiny on device safety throughout the product lifecycle.

VVP-I: A BROAD SPECTRUM ANTISEPTIC

PVP-I is best known as a broad-spectrum antiseptic used for skin disinfection and is on the World Health Organisation's List of Essential Medicines. It exhibits microbiocidal activity against bacteria, fungi, protozoa and viruses. It has a broad application in medicine as a surgical scrub, pre- and post-operative skin cleansing, and is commonly used as a topical application in the treatment and prevention of wound infection.

CLEADEW PVP-I RANGE

The Cleadew PVP-I range has a product for all lens types: Cleadew Soft (**Figure 1**); Cleadew GP (**Figure 2**); and Cleadew SL (for scleral lenses) (**Figure 3**).

Strong disinfectant efficacy

As a broad-spectrum antibacterial disinfectant, PVP-I not only exhibits strong disinfectant efficacy against the stand-alone standard strains (as defined by ISO 14729), but also against clinical isolates and Acanthamoeba that are resistant to disinfectants¹. Its disinfection mechanism is generated by oxidation of water by free iodine, which reacts with the membranous proteins of bacterial and viral surfaces.

Highly effective against Acanthamoeba

PVP-I swiftly targets and eliminates the cytoplasmic membrane of micro-organisms, instantly rendering them inactive. This action extends to micro-organisms such as Acanthamoeba, with 99 per cent eradicated before they enter cyst formation.

Safe for the eyes

The concentration of PVP-I in Cleadew is carefully chosen to ensure safety for both the cornea and conjunctiva. Due to the high biological compatibility of PVP-I, and its automatic neutralisation, the disinfecting component does not directly enter the eyes; as such, it boasts excellent compatibility with all contact lenses, including silicone hydrogel materials, ensuring comfortable wear.

Reduced risk of corneal staining

In terms of corneal and conjunctival safety, Cleadew stands out compared to multipurpose disinfecting solutions (MPS). The incidence of solution-induced corneal staining (SICS) is notably lower ($p \geq 0.011$) than with other solutions, including hydrogen peroxide formulations¹. This underscores the exceptionally high level of safety for the cornea and conjunctiva when using Cleadew.



Figure 2 Designed for gas permeable lenses



Figure 3 Option for scleral contact lens patients

Excellent cleaning efficacy

The sensation of dryness and discomfort experienced while wearing contact lenses is often attributed to the presence of protein material, particularly lipocalin, in the lacrimal fluid². Cleadew efficiently breaks down and removes these protein deposits by utilising proteolytic enzymes in the neutralising tablet (**Figure 4**).

How to use Cleadew PVP-I systems

The Cleadew PVP-I care systems are straightforward to use, especially for patients familiar with one-step hydrogen peroxide systems that use a neutralisation tablet.

Figure 4 shows the structure of the Cleadew soft tablet. The solution is poured into the lens case and a tablet added. The case is then left to stand for four hours, after which the lenses can be worn following a light rinse. Due to the automatic disinfection, cleaning and neutralisation processes, the risk of forgetting neutralisation is eliminated. The liquid turns orange during disinfection before going clear, allowing visual confirmation of the care progress.

CLEADEW MULTIPURPOSE SOLUTIONS

The Cleadew range also contains two multipurpose solutions – Cleadew MPS for soft lenses (**Figure 5**) and Cleadew GP Hydra One for rigid gas permeable lenses (**Figure 6**). Both incorporate a novel hyaluronic acid derivative that helps to keep the contact lens surface hydrated for a longer period of time. Cleadew MPS for soft lenses also introduces a unique dual disinfection system.

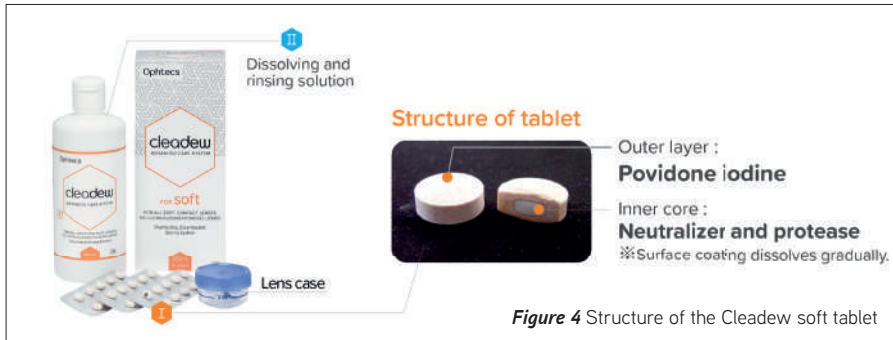


Figure 4 Structure of the Cleadew soft tablet

Dual disinfectant system

Cleadew MPS is the world’s first multipurpose disinfecting solution containing the two ingredients – polyhexamethylene biguanide hydrochloride and alexidine dihydrochloride. These two disinfectants act on the cell membrane of micro-organisms,

hydrogel lenses. SMD helps improve lens wettability to a level not achieved with existing moisturising ingredients, such as sodium hyaluronate. SMD increases tear stability, leading to comfortable lens wear and improved vision until the day of lens replacement.



Figure 5 Incorporating a novel hyaluronic acid derivative

resulting in a higher disinfecting effect compared to conventional single disinfectant multipurpose solutions. Cleadew MPS meets the primary criteria of the ISO 14729 stand-alone test. It also exerts a high efficacy against Acanthamoeba and clinically isolated bacteria in only four hours¹.

Super-Moist Dew Technology

Cleadew introduces a new technology to its multipurpose solutions – Super-Moist Dew (SMD) – to keep the lens surface moisturised for longer. Figure 7 shows how Ophtecs has managed to modify hyaluronic acid to create a hydrophobic group that has an affinity for the silicone (Si) in silicone



Figure 6 Keeping the contact lens surface hydrated for a longer

CLEADREW SALINE SOLUTIONS

Cleadew SLi

Cleadew SLi (Figure 8) is a specially designed, preservative-free, rinsing and insertion saline solution for scleral contact lenses. Thanks to the addition of hypromellose, the lens is easier to insert with a reduced risk of air bubbles. Thanks to the addition of hypromellose and sodium hyaluronate, the lens is easier to insert with a reduced risk of air bubbles and wearing comfort is improved often extending wearing times.

Cleadew CareSolution

This solution is preserved with a low-level of hydrogen peroxide (0.004 per cent) that



Figure 8 Helps ease lens insertion and reduce bubbles

is below the toxicity/sensitivity threshold of the ocular surface, ensuring optimal eye health.

CONCLUSION

The UK market is still having challenges with lens care availability. This, combined with the MDR threatening the future availability of some of the contact lens care systems currently available, means the introduction of the already MDR-approved Cleadew range should be a welcome alternative for contact lens practitioners and their patients.

REFERENCE

1. Ophtecs data on file.
2. Omali NB, Zhah Z, Zhu H, Tilia D and Willcox MDP. Quantification of individual proteins in silicone hydrogel contact lens deposits. *Molecular Vision* 2013;19:390-399.

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What is Super Moist Dew (SMD) Technology?

The SMD Technology is a new development that introduces the hyaluronic acid derivative “HAD”, which coats the contact lens surface.

The hydrophobic group of HAD has an affinity for silicon (Si) on silicone hydrogel lenses, thereby making the lens surface hydrophilic and keeping it moisturised for a long time.

Accordingly, the lens sustains its improved wettability until the day of lens replacement.

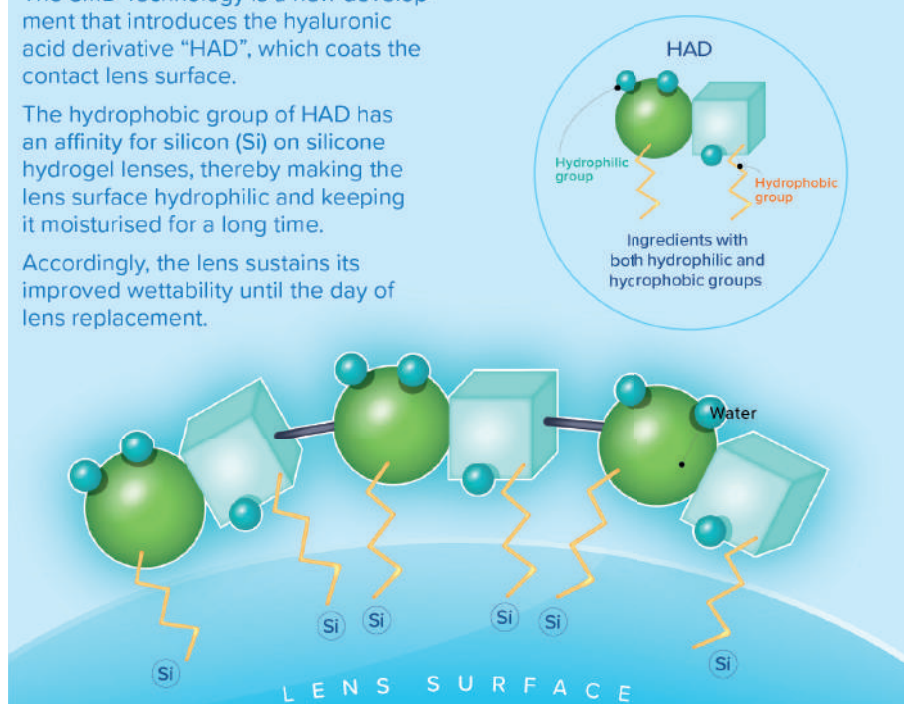


Figure 7 Creating a hydrophobic group with an affinity for silicone