cleadew

GP hydra one

ADVANCED CARE SYSTEM

FOR ALL
RIGID GAS PERMEABLE
CONTACT LENSES

Ophtecs

for disinfecting, cleaning, and storing for all rigid gas permeable contact lenses

FEATURE 1

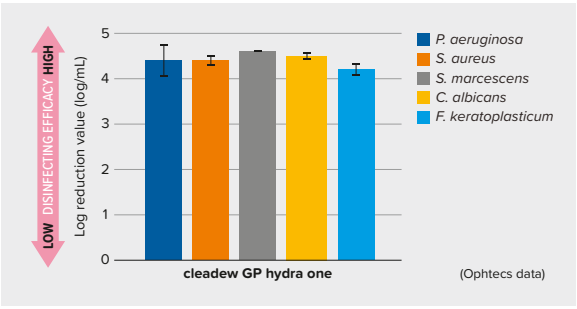
Disinfect

Disinfecting efficacy

Disinfecting efficacy against ISO standard strains

cleadew GP hydra one exhibits very high disinfecting efficacy (up to the detection limit) against ISO standard strains.

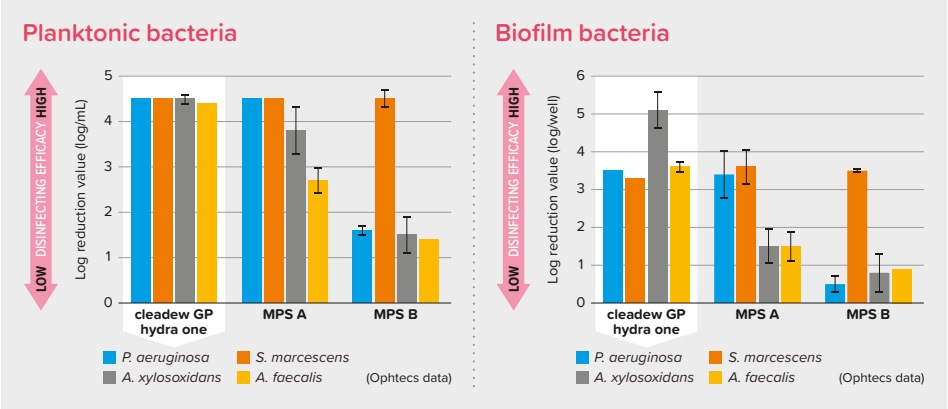
Test method:
1.0×10^5–10^6 cfu/mL of the test strains are inoculated in disinfectant and left to stand for 4 hours. Then, the remaining live strains are counted.



Disinfecting efficacy against clinical isolated bacteria and its biofilm

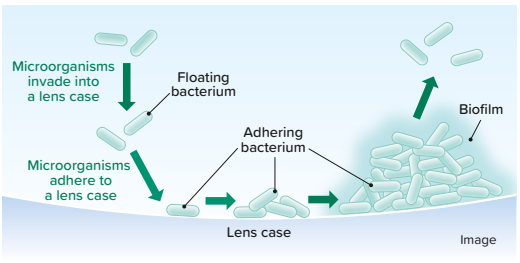
cleadew GP hydra one also shows disinfecting efficacy against the strong bacteria resistant to disinfectant components (clinical isolates), as well as biofilms. The high disinfecting efficacy is due to the product containing hydrogen peroxide at 40 ppm, which enhances the efficacy of PHMB as the main disinfectant component.

Test method:
For planktonic bacteria: 1.0×10^5–10^6 cfu/mL of the test strains are inoculated in disinfectant and left to stand for 4 hours. Then, the remaining live strains are counted.
For biofilm bacteria: 1.0×10^7 cfu/well of the test strains are inoculated on the plate for 24 hours to form a biofilm. Disinfectant is added to it and allowed to stand for 4 hours. Then, the remaining live strains are counted.



Importance of disinfecting the lens cases

Bacteria that adhere to the lens case cannot be easily removed because of the acquired drug resistance from producing a biofilm. The bacteria adhering to the lens case may grow and transfer to the eyes through the contact lenses and thus cause a corneal infection. Therefore, it is important to sufficiently disinfect not only the contact lenses but also the lens cases to prevent corneal infections.
cleadew GP hydra one is also highly effective for biofilms adhering to lens cases.



FEATURE 2

Comfort

Super Moist Dew Technology Improves Lens Wettability

What is Super Moist Dew (SMD) Technology?

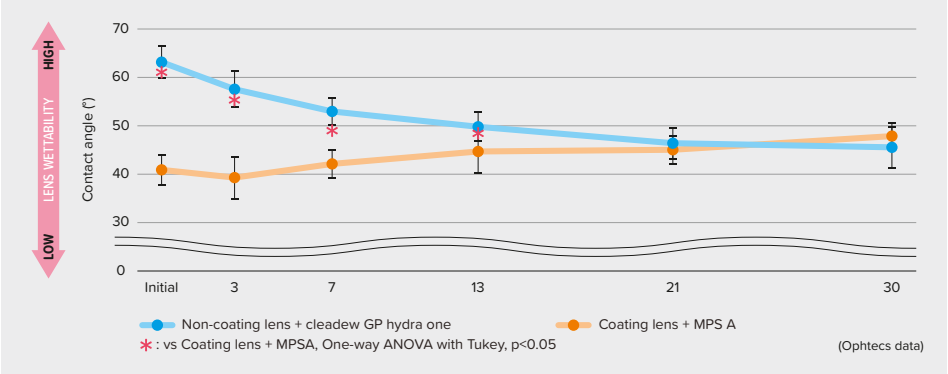
cleadew GP hydra one introduces a new technology, Super-Moist Dew Technology, to keep the lens surface moisturized for a long time. The SMD Technology is a new development that introduces the hyaluronic acid derivative “HAD”, which coats the contact lens surface. HAD improves the retention of lens wettability not achieved with existing moisturizing ingredients of sodium hyaluronate.

HAD accumulates on the lens surface through daily lens care and keeps the lens hydrated with tears to reduce the feeling of dryness when wearing the lens.

Image

Change in lens wettability due to repeated lens care

Repeated treatment of the contact lenses with **cleadew GP hydra one** maintains semi-permanent high lens wettability. SMD Technology improves and maintains lens wettability through repeated lens care. This is a completely different technology from the coating, which is applied to the lens during the manufacturing process.



(Ophtecs data)

Test method:
Each lens with and without certain lens coating which improve wettability were immersed in artificial tear solution containing proteins, lipids and inorganic salt for mimic contact lens wear. Lenses without the lens coating were then treated with **cleadew GP hydra one** and lenses with the lens coating were treated with MPS A in accordance with the instructions (rubbing and soaking). This was repeated to evaluate the change in contact angle for each lens.

EYE SAFTY

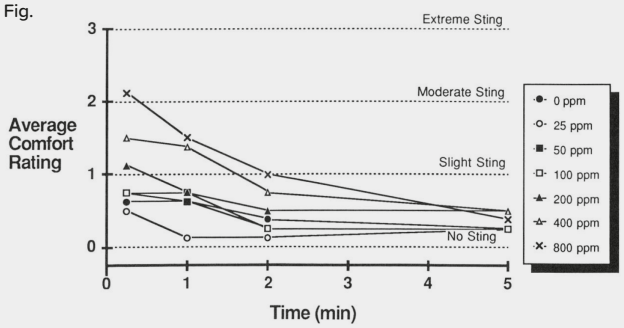
Coexistence of Disinfecting Efficacy and Safety

Safety of Hydrogen Peroxide 40 ppm

Hydrogen peroxide, at ≤ 100 ppm, is reported to have low toxicity against and not affect the level of comfort for the cornea (Fig.).*

*Ocular Response to Hydrogen Peroxide. American Journal 65:91-98, 1988

Fig.



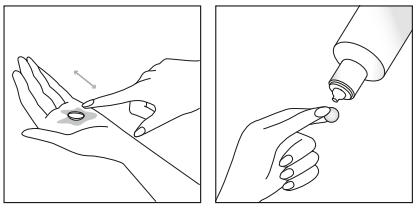
Since 2015, Ophtecs has marketed products containing hydrogen peroxide at 40 ppm as a care product for soft contact lenses, which have higher adsorption of the care solution ingredients than rigid gas permeable contact lenses, and these products have already been used by many consumers.

CONTENTS

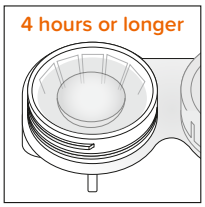
1 **cleadew GP hydra one:** 360mL×1
Polyhexamethylene biguanide hydrochloride (0.0005%),
Hydrogen peroxide as preservative (0.004%),
Boric acid

2 **Lens case:** 1

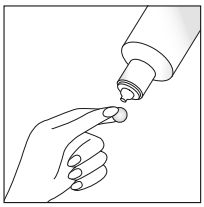
HOW TO USE



1
Remove each lens from your eye and place it on your palm. Place a few drops of **cleadew GP hydra one** on each lens surface and rub 20-30 times with your finger. Rinse each lens thoroughly for 5 seconds with fresh **cleadew GP hydra one**.



2
Fill the lens case with **cleadew GP hydra one** and place the lenses into the lens case. Close the lens case tightly. Soak lenses for at least 4 hours (or overnight) until ready to wear.



3
Rinse lenses for 5 seconds with **cleadew GP hydra one** before wearing.

CAUTION
After the lens care, rinse the lens case with **cleadew GP hydra one** and allow to air dry.

Improvement of GP properties by novel Hyaluronic Acid Derivative in MPDS solution

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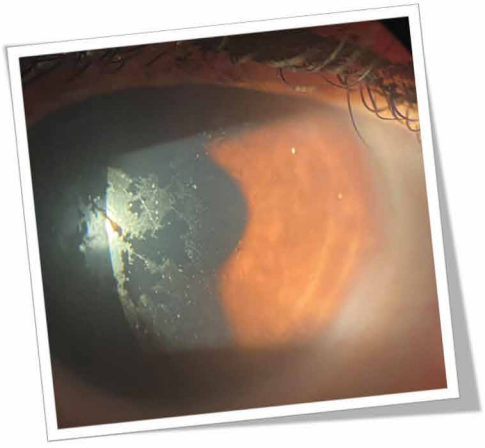
Introduction

Surface treatments such as plasma and hydra-PEG have become popular to manage surface properties of newer, high Dk GP lens materials.

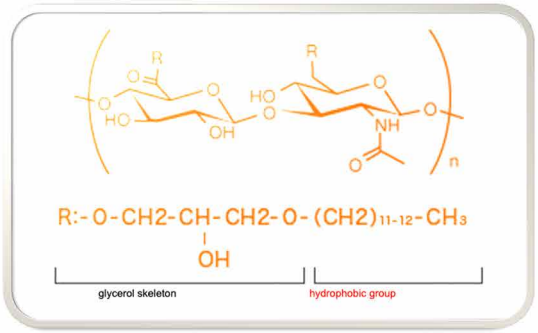
However, these treatments are subject to disruption due to normal wear, care and handling, resulting in reduced vision and/or discomfort



Objectives

To determine the impact of a multipurpose disinfecting solution (MPDS) containing a novel hyaluronic acid derivative (HAD) on coated & non-coated high Dk FSA GP lenses (fluoroxyfocon A)

Hyaluronic Acid Derivative



British Contact Lens Association

Methods

Lens Materials	
fluoroxyfocon A (untreated)	fluoroxyfocon A (hydra-PEG treated)

Lens Care Solutions			
Exp	*MPDS*	*Disinfectant*	*Wetting Agent*
1,2,3	MPDS-1 (HAD+)	PHMB (5 ppm)	HAD
1	MPDS-1 (HA) exp	PHMB (5 ppm)	HA
2	MPDS-1 (HAD-) exp	PHMB (5 ppm)	- 0 -
3	MPDS-2	CHG (30 ppm) PAPB (5 ppm)	HPMC, Glucam

1. HAD adsorption by fluorescence microscopy
Hydra-PEG treated & untreated FSA lenses
Cycle 8h in MPDS with HAD_{FI} or HA_{FL} / 16h PBS
Image with fluorescent microscope

2. Contact angle MPDS HAD+ vs HAD- (untreated)
Untreated FSA lenses
ATS soak x 16h; Cycle 8h in MPDS (HAD+) or MPDS (HAD-) / 16h ATS
Measure contact angle (sessile drop)

3. Contact angle MPDS HAD+ vs MPDS HAD- (H-PEG treated)
Hydra-PEG treated FSA lenses
ATS soak x 16h; Cycle 8h in MPDS with HAD+ or HPMC / 16h ATS
Measure contact angle (sessile drop)

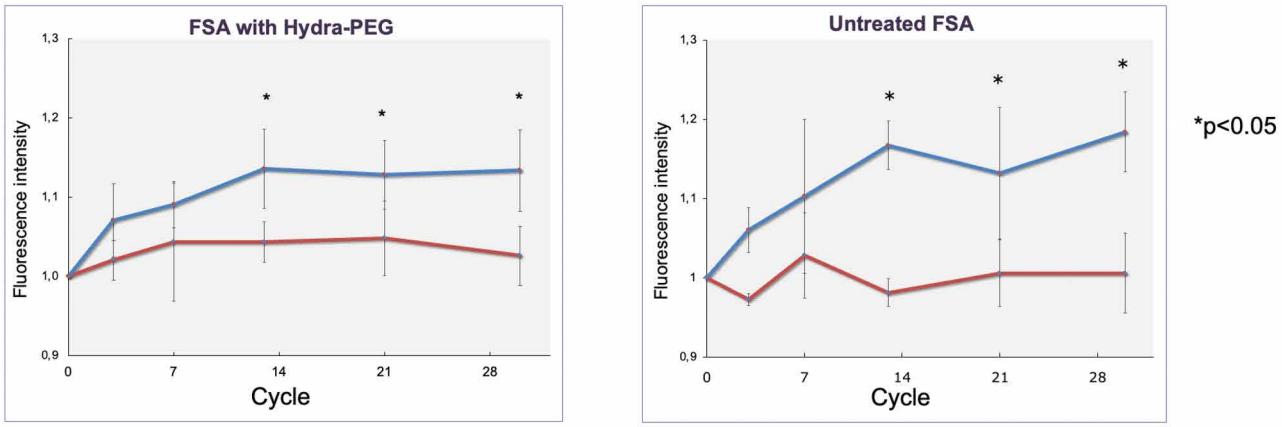
British Contact Lens Association

Results

Adsorption of HA vs HAD h-PEG treated & untreated lenses

HAD adsorption post 30 cycles 8h/16h MPDS/PBS

(fluorescent labeled HA/HAD)†



†reference 1.0 = fluorescence level after soak in PBS

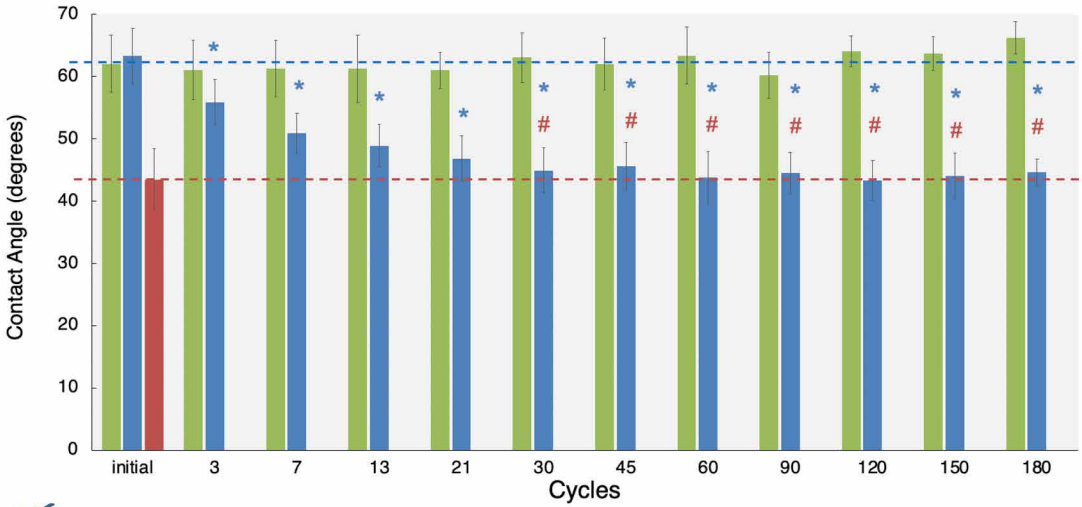
Results

Contact Angle with MPDS-1: HAD+/HAD- (untreated FSA lens)

*p<0.05 vs B/L untreated (blue bar) 1way-ANOVA with Dunnett

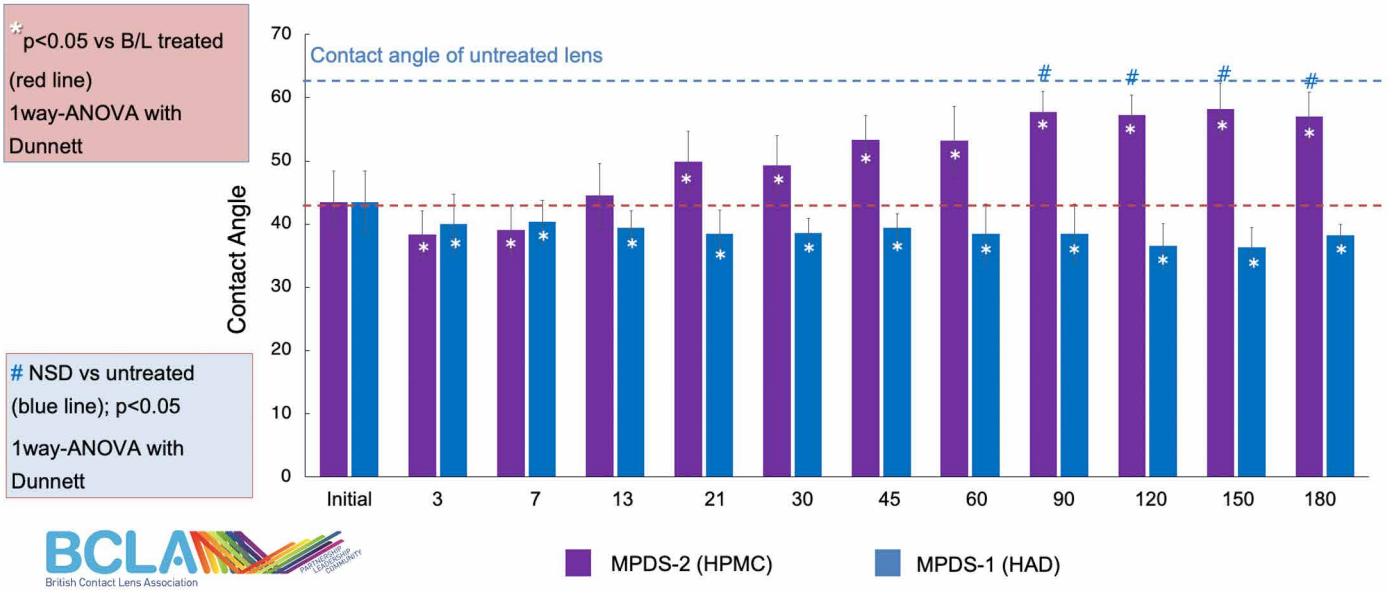
NSD vs B/L treated (red bar); p<0.05

1way-ANOVA with Dunnett



Results

Contact Angle with MPDS-1, 2 (H-PEG treated FSA lens)



*p<0.05, vs initial, 1way-ANOVA with Dunnett

Discussion/ conclusion(s)

- The novel hyaluronic acid derivative (HAD) adsorbs to high Dk FSA GP lens more readily than conventional HA on both treated and untreated lenses
- Cycling in MPDS with HAD improved contact angle (CA) of untreated FSA lens to levels of a treated lens within 30 cycles
- A commercial MPDS caused deterioration of CA within 21 cycles while the HAD+ MPDS maintained surface wettabiliy