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Contact Lens Care & Compliance

Care of Plasma-Treated GP Lenses



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Although plasma treatment of GP lenses has been around for many years, some confusion remains about the purpose, the process, and the do's and don'ts of handling plasma-treated lenses.

Plasma treatment is not a lens coating. Treating GP lenses with oxygen plasma is a very effective cleaning method to remove any remaining residues from the lens manufacturing process. This super cleaning process decreases the wetting angle, resulting in a more hydrophilic lens surface, which in turn decreases lens awareness and therefore increases comfort. A clean lens is a comfortable lens; this is particularly true for GPs.

What is Plasma?

Plasmas are the fourth state of matter—after solids, liquids, and gases. In fact, plasmas are the most common phase of matter, comprising more than 99 percent of the visible universe. Plasmas permeate the solar system as well as interstellar and intergalactic environments. They are similar to gases, but their atoms are different as they are made up of free-moving electrons and ions. Collectively, plasmas are electrically neutral mediums of positive and negative particles. When the charges move, they generate electrical currents with magnetic fields. These highly charged particles can be used to clean many material surfaces. Polymers, metals, rubbers, ceramics, glass, and electronics are suitable for plasma cleaning.

Plasma used by a contact lens laboratory is created by radio frequency ionization of oxygen gas in a vacuum chamber. Oxygen plasma reacts with molecular debris deposited on the lens surface, breaking them down and turning them into volatile compounds, which are removed. Oxygen plasma is especially effective in removing organic lipids from lens surfaces.

Following plasma treatment, the lens is as clean as it will ever be. The lens is immediately placed in a storage solution to protect it from environmental contamination.

Boston Simplus (Bausch + Lomb [B+L]) is the solution most often used by GP manufacturing laboratories for storage/shipping/disinfection of GP lenses after plasma

treatment. Keeping the lenses moist is key. The benefits of plasma treatment are lost if a dry (and statically charged) lens encounters other dry surfaces.

Avoid handling the lenses prior to dispense. Plasma treatment is intended as an "initial comfort" process, ostensibly making the lenses more wettable until the body's tears and natural biofilm coating processes take over. The plasma-treated effect will wear out over time as daily handling and environmental substances (e.g. skin oils, eye area makeup) contaminate the lens surfaces. The plasma-affected deep cleaning may last for weeks.

Lens Care

You can use any approved GP cleaning and disinfecting system with plasma-treated lenses. Daily lens cleaning use is very important for all GP contact lenses. However, manufacturers recommend avoiding abrasive lens cleaners such as Boston Advance Daily Cleaner (B+L). Personally, I have not found abrasive daily cleaners to be a problem long term. Solvent and alcohol-based cleaners such as Optimum ESC (Lobob) or Sereine (Optikem International) may be recommended by practitioners.

The oxidizing effects of hydrogen peroxide lens care products (e.g. Clear Care, Alcon) offer excellent cleaning and disinfection for long-term lens care. GPs will be more comfortable and perform better if lens wetting agents (Optimum WRW, Lobob; Boston Conditioner, B+L) are used before lens application. **CLS**

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