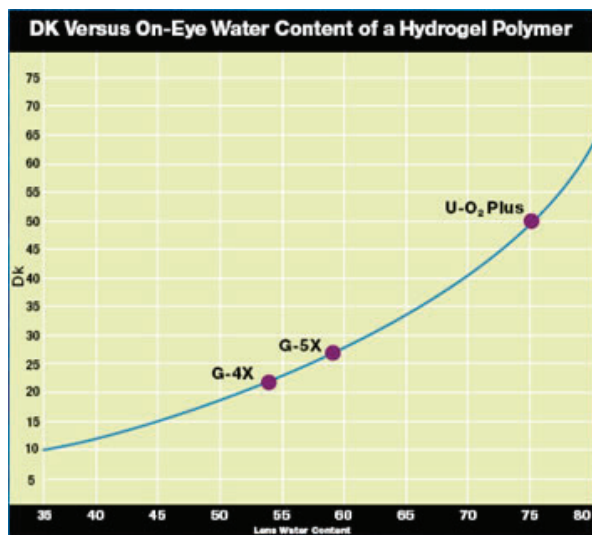


High Performance Materials

Overview

The on-eye performance of the lens materials you choose can provide strong advantages for marketing your lens products and give you valuable differentiation in the marketplace. The choice of lens material is an important decision for your business growth. One of the biggest opportunities available to the custom lens manufacturer is in the area of high performance soft lens materials and the improvements they bring to on-eye lens performance that patients can see and feel. Our second and third generation hydrogel materials offer the custom lens manufacturers a very positive and consistent patient response compared to silicone hydrogel lenses. Lens materials from Benz that exceed the criteria for high performance daily wear lenses are G4X, G5X and Ultra O2 Plus. Building a business strategy around these materials makes a lot of sense.

Most consumer lenses are still made of first generation hydrogels. This means that most molded lenses are not dimensionally stable. They also shrink, become tighter and lose their initial comfort as the wearing cycle progresses. This makes molded lenses look and feel generic and very similar to each other compared to high performance hydrogels. Marketing lenses made from Benz second or third generation materials G4X, G5X and Ultra O2 Plus solves these problems for both the practitioner and patient. High performance hydrogel lenses create a valuable separation between your products and low cost consumer lenses.



Chemical Composition

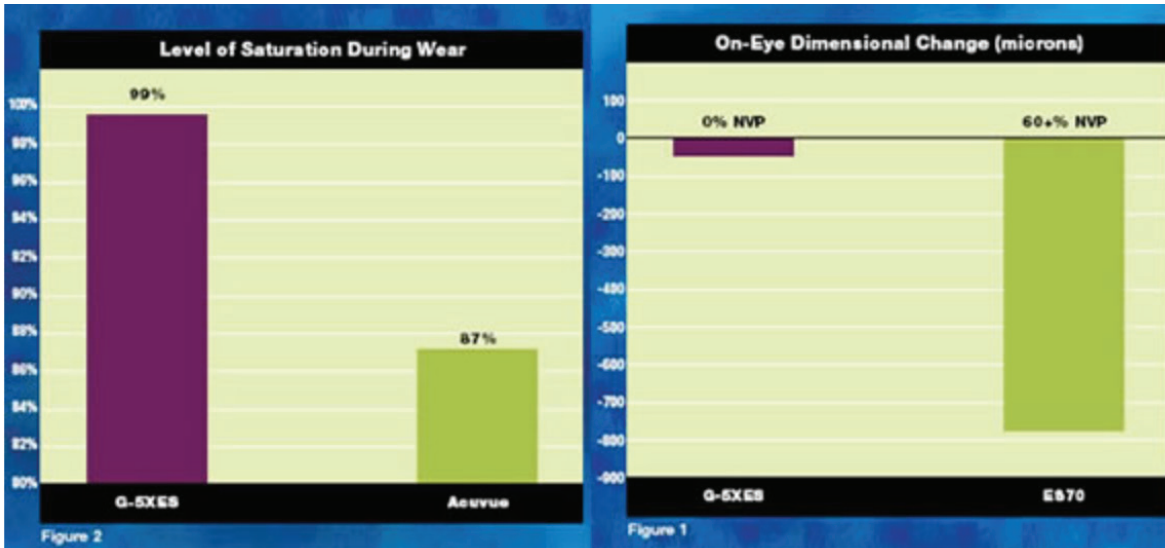
High performance G-materials are based primarily on Glycerol Methacrylate. Hioxifilcon is the USAN name for the co-polymer composition of Glycerol Methacrylate (GMA) and 2-Hydroxyethylmethacrylate (2-HEMA). Glycerol Methacrylate is the primary hydrophilic monomer in all high performance G-materials and is responsible for the unique on-eye characteristics of these materials.

High performance G-materials are available in water contents of 54%, 59%, and 75%. Because these materials lose little or no water on-the-eye, they remain 100% dimensionally stable and retain their oxygen permeability during wear. Lenses made of these materials out-perform other hydrogel lens materials on-the-eye in dimensional stability, oxygen permeability, end-of-day comfort, wettability, scleral staining and visual acuity. All Benz GMA based materials lose less than 1%. High performance G-material lenses show essentially no dimensional change or water loss on-the-eye even at the end of the wearing cycle. Figure 1 (below) shows a comparison of on-eye dimensional change of the two types of lenses (lidofilcon A(ES 70) and hioxifilcon A (G5XES).

The large on-eye dimensional change of lidofilcon lenses is caused by two factors, substantial water loss and a significant dimensional change with changes in temperature. On-eye hydration levels of high performance G-material lenses and lidofilcon lenses (ES 70) is shown in Figure 2 (below). High performance G-materials have the same water content on-the-eye as in the vial. This critically important ability is missing in other custom lens materials.

High Performance Materials

Chemical Composition



Benefits

Custom Lenses of these materials have the following selling benefits:

1. Lenses provide more than 20 Dk/t oxygen permeability, therefore they are high performance for daily wear and support healthy physiology.
2. Lenses remain completely saturated, on-the-eye and maintain Dk during wear.
3. Lenses require no "settling time".
4. Lenses remain 100% dimensionally stable on-the-eye, resulting in excellent visual acuity and fit.
5. Lenses provide the lowest scleral abrasion of any contact lens.

