



**water optics**  
**SABLE®**

*The Difference is Clear*



*The finest prescription and  
non-prescription eyewear available  
– in, on and under the water.*

**Rx**



# **SABLE®**

## **First in water optics...**

*In 1984, SABLE became the very first in the world to offer **swimming "spectacles" with corrective lenses** for people with myopia (nearsightedness).*

*More than 20 years ago, SABLE became the first in the world to offer **a prescription lens bank complete with a wide range of diopters** for customized swim spectacles.*

*SABLE was the first in the world to offer swimming goggles with both **flat and aspherical lenses that don't distort vision** above or below the water.*

*SABLE was first in the world to introduce **the most advanced anti-fogging technology** – FOG EATER – into the production process.*

## ***Aquatic eyewear will work to:***

- Limit direct eye contact with water that may lead to waterborne infection
- Prevent irritation or allergic reaction to pool disinfectants
- Relieve pain caused by differences in pressure
- Reduce the possibility of injury to eyes from being hit or kicked

## ***Average goggles aren't good enough...***

When human eyes are immersed in water, our vision is blurry, at best, making it difficult to distinguish objects or to judge distances. While average swim goggles may seem to improve vision underwater, they may actually be doing harm.

- Over time, poorly designed goggles can increase your diopters — possibly exacerbating nearsightedness.
- Arc-shaped goggles may simulate astigmatism, causing significant eye stress.
- Many swim goggles have meniscus-shaped lenses (with convex front surfaces and concave back surfaces) that may improve vision under water, but perform as plano (flat) lenses above water. Swimming in such goggles is very tiring for the eyes, which must adjust every time the head moves above or below the surface.

## ***SABLE WaterOptics define an entirely different category of aquatic eyewear...***

### ***GUARANTEED!***

Nothing lasts forever, but SABLE WaterOptics durability and lasting power is legendary. Under normal use, there's a limited lifetime guarantee against breakage. We even offer a free "once-in-a-lifetime" lens replacement, should it be needed. Simple maintenance will sustain the SABLE advanced Anti-Fog function well beyond the standards of others. You'll see!





**Three-time Olympic medal winner Gary Hall, Sr. says:**

*"I've spent my adult life promoting swimming and healthy eyes, but never found a goggle that worked for both. SABLE WaterOptics clearly changes everything, combining superior optics with superb sporting performance and comfort. Now I exclusively recommend SABLE WaterOptics to anyone who seeks the best optical gear in, under and around the water."*

*US flag bearer at the 1976 Olympics, Hall held 10 world swimming records, won 30 US National Titles and was first to swim the 400-yard individual medley in under 4 minutes.*



# water optics

*The Difference is Clear*

*In North America, distributed exclusively by:*

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Tel: 1-888-516-4831  
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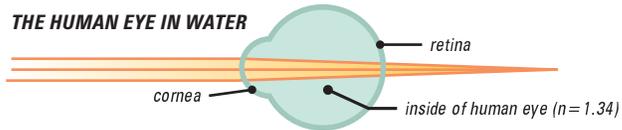
Fax: 416-261-4831

## How sea lions and sables are better equipped than humans...

Unlike eyes of amphibious mammals that can see clearly in or out of water, our eyes function properly only in air. When human eyes are immersed, they cannot perform optimally.



Light moves straight through air, which has a refraction index of 1.0 ( $n=1.0$ ), into the eye ( $n=1.34$ ), resulting in refraction that focuses light on the retina.



Light moves straight through water ( $n=1.33$ ), into the eye ( $n=1.34$ ). The refraction index is so similar, that little refraction occurs, so light cannot focus on the retina.

Amphibious mammals (like the agile, athletic sable) are able to adjust the shape of their eyes to accommodate the focal length needed in the water. Since humans can't do that, we need to keep our eyes sealed within capsules of air, in order to maintain consistently good vision in both air and water. That's where properly fitted aquatic eyewear like SABLE® WaterOptics comes in.

But that's just the beginning of the story. SABLE WaterOptics provide benefits far beyond those of ordinary swim goggles, to give you the visual advantages you need – in, on and under the water.



## Why we subscribe to a flat world view...

You can try this simple experiment at home.

- 1) Find three drinking glasses: one rectangular, one wide and round, one narrow and rounded.
- 2) Fill each glass half-full with water and place a straw in each glass.



In the wide round glass, the straw will exhibit noticeable distortion.

In the narrow rounded glass, the straw will exhibit a good deal more distortion.

In the rectangular glass, the straw will exhibit little or no distortion.

Typical swim goggles cause eye stress by distorting your underwater vision. Absolutely flat lenses result in little or no distortion, so you'll see better, with less eye stress, through flat-lensed SABLE WaterOptics.



Famous worldwide brand of goggles with convex spherical plano lens: image under water shrinks and blurs; distortion similar to  $-2.5$

Common swim goggles with plano arc-shaped lens: image under water distorts similarly to effect of astigmatism  $C-5.00$

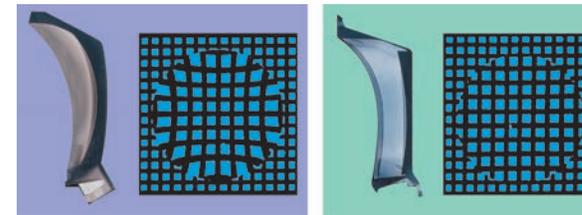
SABLE WaterOptics absolutely flat lenses: vision unchanged and clear under water, image undistorted

## Hard to beat...

SABLE WaterOptics incorporate breakthrough hard-coating technology that renders the lenses virtually scratchproof, while imparting crystal-standard transmittance and gloss.

## Lighter, thinner, and "looks" better...

For the spherical lenses used in most swim goggles, as diopters become higher, lenses get heavier and the field of vision narrows – neither desirable for swimmers. The aspherical lenses built into SABLE WaterOptics are made thinner and lighter, while enabling the best visual quality by rectifying optical edge aberrations.

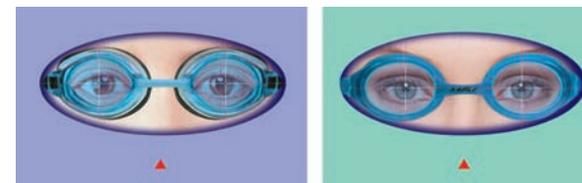


Typical spherical lens with  $R_x -7.0$ : narrow field of view – images distorted with edge aberration

SABLE WaterOptics aspherical ultra-thin lens with  $R_x -7.0$ : much lighter; rectifies edge aberration

## Winner by a nose (bridge)...

When you are fitted for corrective eyeglasses, the optician is careful to correctly measure the pupil distance (PD) value – the distance between the pupils of the right and left eyes. For a proper correction, the centers of each lens need to be perpendicular to the pupils; if they are not, the resulting prism effect can cause vision to deteriorate. In 1993, SABLE conducted research on a population aged from 20 to 43 years and found that the most common PD values range from 58mm to 65mm, yet the PD values for most swim goggles ranged from 67mm to 79mm, thereby failing to meet the needs of most consumers. The modular nose bridges included as part of the SABLE WaterOptics system are designed to accommodate real people.



Typical goggles do not accommodate alignment of lenses to PD value.

SABLE WaterOptics lenses match the geometrical center point of the lens to the pupil.

## Fit for the best view – $R_x$ or not...

Whether you need prescription lenses or not, the SABLE WaterOptics approach to fit ensures clear vision and optimum comfort. Soft silicone rests against the eye socket, sustaining the watertight seal needed to keep eyes surrounded by air and functioning optimally. The easily adjusted non-slip strap maintains a comfortably snug fit.

## True corrective measures...



Seeing clearly can be critical to safety in, on and under the water. If you need corrective lenses above water, you need them underwater. Why not simply wear contact lenses? Bacteria, oil, dirt and chemical agents can come into contact with eyes and with your contact lenses underwater, potentially causing infection and/or damaging your contacts. To ensure the health of your eyes, the SABLE Prescription Lens Bank offers a complete collection of corrective lenses available for aquatic eyewear. Lenses are available to correct myopia  $-1.5$  to  $-10.0$ . While other so-called "corrective" swim goggles are typically limited to providing the same diopter for both eyes, the SABLE Prescription Lens Bank can deliver appropriate corrections for each eye, even making it possible to correct for mild astigmatism.

## Topped off with Super Anti-Fog...

SABLE WaterOptics offer leading-edge antifogging technology, superior because:

- 1) Hydrophilic characteristics prevent moisture from adhering to the lens surface and producing fog.
- 2) With proper care and use, Super Anti-Fog will endure for the lifetime of your SABLE WaterOptics eyewear.