



# HydroSal® BKC

Technology for alcohol-free, on-demand protection.

BKC (Benzalkonium Chloride) extends protection from microbes, pathogens, bacteria, viruses, fungi, and protozoa. It has consistently been the disinfectant of choice for hospitals. HydroSal® BKC was designed to achieve a better utilization of BKC, while replacing alcohol-based antiseptics, at low concentration.

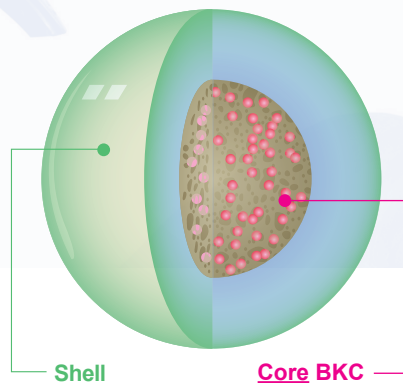


Figure 1: The sub-micron structure of HydroSal® BKC with the BKC infused within the core.

## UNIQUE FEATURES

- 1 **ALCOHOL-FREE**  
Water-based formula that is gentle on skin.
- 2 **INCREASED SAFETY**  
Non-flammable, and easy to formulate with.
- 3 **LONGER-LASTING**  
Protection that can be re-activated multiple times with moisture (i.e. perspiration).

## LONG-LASTING FRAGRANCE SENSATION

HydroSal® BKC is an encapsulation technology comprised of sub-micron spheres approximately 0.1 to 0.3 microns in diameter. These spheres are infused with BKC and form a clear product. The HydroSal® technology allows for time release and longer-lasting effects, extending the time of protection from microbes.

The product is effective upon application. In addition, it can be re-activated long after initial application, when exposed to water or perspiration. The shell is able to assemble and lock in the BKC while drying. Once in contact with water after drying out, the shell dissolves and exposes the BKC again. This feature allows the system to provide

maximum protection in areas that are exposed to cycles of dampness and dryness. The protection is needed most in damp/wet conditions because these conditions are favorable for bacteria growth, such as the under arm and foot.



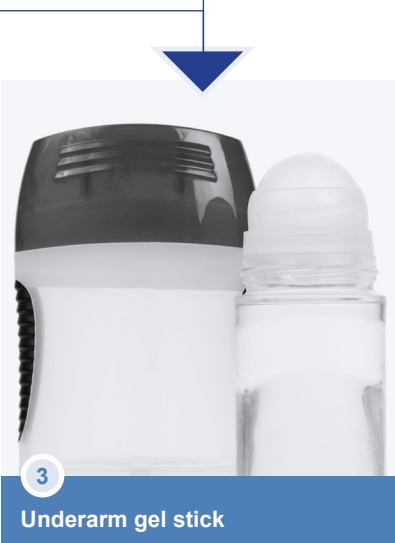
HydroSal® BKC raw



1 Alcohol-free antiseptic spray



2 Alcohol-free hand gel



3 Underarm gel stick

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## SUPERIOR LONGEVITY FROM LEAVE-ON

Prolonging the protection is crucial. The major advantage of the HydroSal® technology is its ability to induce adhesion to the skin from a wash-off application, extending protection over a longer period of time (Figure 5).

In a clinical study, volunteers (n=8) applied moisturizing lotion containing HydroSal® BKC and another containing free BKC at the same level. The level of BKC was monitored over 6 hours by alcohol extraction of the skin followed by HPLC analysis.

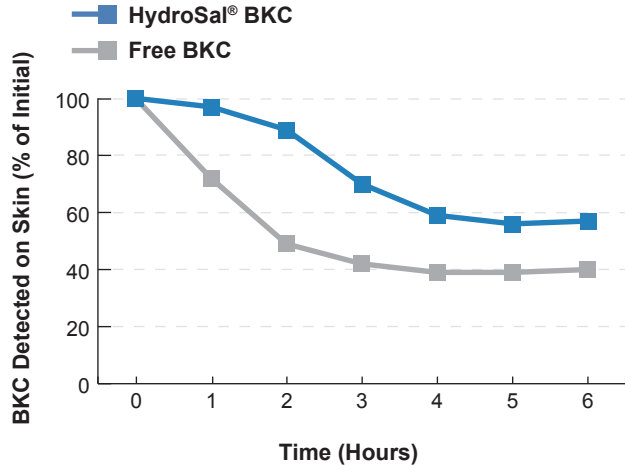


Figure 5: A clinical study shows that a leave-on skin lotion containing HydroSal® BKC technology provides greater retention of BKC on the skin for six hours than a lotion with Free BKC.

## ENHANCED DEPOSITION FROM RINSE-OFF

The HydroSal® technology enables increased deposition of BKC onto the skin from a rinse-off application, such as a body wash (Figure 6).

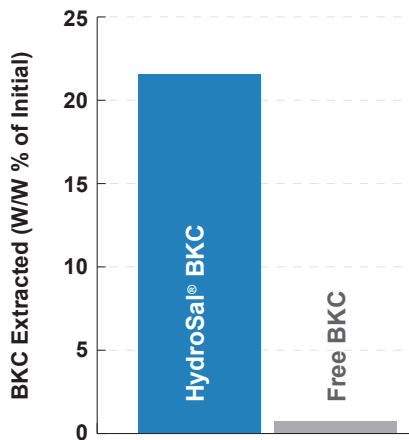


Figure 6: HydroSal® BKC deposited over 20% more BKC on the skin than a commercial body wash containing free BKC. Volunteers (n=8) washed their forearm and rinsed, with alcohol extractions for the skin following (HPLC analysis used to quantify the level of BKC residue on the skin).

## FORMULATION

| Ingredients             | (W/W %) |
|-------------------------|---------|
| HydroSal® BKC           | 1       |
| SalScent®               | 2       |
| Salvona Pre-Mix S #5016 | 10      |
| DI Water                | 87      |

## TECHNICAL DATA

|                                |   |
|--------------------------------|---|
| <b>Appearance @ 20°C</b>       | Partly translucent liquid   |
| <b>Applications</b>            | Suitable for sanitizers, disinfectants, anti-acne applications such as lotions and sprays, mouth washes and cleansers |
| <b>Color</b>                   | Yellow  |
| <b>Odor</b>                    | Characteristic  |
| <b>pH (1 % solution)</b>       | 6 ± 1   |
| <b>BKC Assay (HPLC) (Wt.%)</b> | 20 ± 2  |
| <b>Shelf Life (months)</b>     | 18  |
| <b>Usage Level (wt%)</b>       | 0.7-1.0   |
| <b>Storage (°C)</b>            | Closed container at 12-32°  |

### References

1. KA Bryant, J Pearce & B Stover. Flash fire associated with the use of alcohol-based antiseptic agent. American Journal of Infection Control, June 30 2002, 256-257.
2. CG White, FS Shinder, DL Dyer. Reduction of Illness Absenteeism in Elementary Schools Using an Alcohol-free Instant Hand Sanitizer. The Journal of School Nursing, October 2001, 17: 248-265.