

## ***Briotech White Paper on Applications*** **Briotech HOCl Topical Use on Skin and Wounds**

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**Introduction:** Topical uses of electrolytically-generated HOCl have received approvals from US and EU regulatory agencies for conditions ranging from the decontamination of foodstuffs to wound cleansing and skin healing enhancement. Some of these applications are in place for unstable HOCl preparations that require on-site production, but in recent years stabilized solutions have appeared that have also met with approvals. Specific healthcare claims have been secured for conditions such as adenoviral conjunctivitis and bacterial blepharitis, with more generalized claims allowed for speeding chronic wound healing and skin recovery after a variety of dermatological and cosmetic procedures.

Briotech's HOCl has now created a new standard of purity and stability in this field. Its suitability for applications across the board in skin and mucous membrane hygiene make it a timely addition to the management and improvement of skin care, especially in women.

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### **BrioHOCl and Its Effects**

Once HOCl had been identified in human white blood cells in the late 20<sup>th</sup> Century as the body's first line of defense against injury and infection, many efforts were made to create usable versions of it for medical and consumer applications. Early attempts succeeded by applying electrolysis to salt solutions that gave rise to HOCl, but the method produces it in an unstable and short-lived form. That makes it impossible to commercialize as a packaged product. Technology advances enabled more stable solutions to appear in the marketplace over the last decade, though some depend upon

the use of chemical additives to achieve practical shelf lives for the products. The breakthrough that gave rise to Briotech HOCL came about from years of careful experimental analysis of the electrochemistry involved. The problem has finally been solved with development of a reproducible large-scale manufacturing process for pure, stable HOCl with unprecedented potency <sup>(1)</sup>.

HOCl in the body triggers a cascade of cellular and tissue events that are important mechanisms of healing and repair. These include promoting blood clotting to seal the

wound site, down-regulation of pain receptors, stimulation of skin cell growth and movement to cover the injury, increases in new blood vessel growth and invasion of the healing site, prevention of microbial infection, inhibition of bacterial enzymes and virulence factors, and stimulation of the immune responses to microbial antigens in the local lymph nodes. As the wound

healing process advances, local HOCl encourages orderly fibroblast organization, so as to re-model the local tissue architecture, and minimize unsightly or over-reactive scarring. And the end products of HOCl use in the body, whether made by enzymes in white blood cells or applied topically as a Briotech HOCL solution are always the same—salt and water.

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### **Topical Application Results**

All these downstream consequences of local production of HOCl by white blood cells can be augmented by topical applications of pure HOCl. The result is that the overall healing process is “hurried” to the direct advantage of the affected skin or mucous membrane. Not surprisingly this translates into a wide range of benefits and experiences for users who apply the solution topically to lesions of whatever origin—whether burns from an excess of sunbathing or from a kitchen accident, cuts and scrapes from accidents or stings and bites from insects or animals, chronic deep-seated Staphylococcal acne or long-standing non-healing bedsores or ulcers. Some of those typical experiences are illustrated in

the series of user generated photographs on the following pages.

However, topical use of Briotech HOCl has proven useful in cosmetic mode, soothing irritations that often arise from cosmetic interventions, cleaning, toning and soothing the skin and enhancing unblemished recovery from dermatological procedures or plastic surgery. Scar formation may be minimized both in the acute phases of wound recovery, and in the longer term where conscientious repeated use can even reorganize and minimize fibrous tissue deposits to make them much less noticeable or unsightly. The advantages of use for these indications are particularly attractive for women.

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**In Summary:** Briotech HOCl offers the assurance of purity and reliability, even after prolonged storage, of topical solutions that are proven useful in the many modes of support for skin and mucous membrane recovery from injury. User experiences provide unbiased and valuable support for widespread use in households and healthcare of this innovation.

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### **References**

<sup>(1)</sup> <http://dx.plos.org/10.1371/journal.ppat.1005914>