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## **Toxicity and Safety of Topical Sodium Hypochlorite**

*Mary K. Bruch*

Micro-Reg Inc., Hamilton, Va., USA

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### **Abstract**

The safety and toxicity of sodium hypochlorite is reviewed with particular correlation to topical use. Since sodium hypochlorite is one of the most widely used chemicals in the environment, its safety has been established by long use and toxicity profile. This chapter reviews recent toxicology testing including routine systemic LD50, topical LD50, topical toxicology, irritation and sensitization. The resulting toxicity or safety profile clarifies the safe topical use of electrolytically produced sodium hypochlorite solution (ExSept, Amuchina 10%).

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### **Historical Use of Sodium Hypochlorite**

The history of the use of hypochlorite as a disinfectant and antiseptic goes back hundreds of years. It was used for the treatment of wounds and burns even before the revolutionary work of Lister and Koch. Among early uses, the Marquis de la Motte used a hypochlorite solution for the treatment of gangrene in 1732 [1]; and Paris surgeons used it for the treatment of burns, operative wounds, and ulcers [1]. As noted in the background section, Semmelweis used hypochlorite as an antiseptic hand wash to reduce the very high incidence of puerperal fever (childbed fever) during childbirth in a Vienna hospital. He ensured that his hands, and the hands of his assistants, were washed in a hypochlorite solution. He also insisted that a hypochlorite solution be used on any instruments likely to come in contact with the vaginal canal. While Semmelweis' technique resulted in a drastic decrease in the death rate from puerperal fever, his contemporaries largely ignored his work [1, 2]. Koch reported the antiseptic properties of hypochlorites in 1880 [3]; however, the widespread acceptance of hypochlorite, and recognition