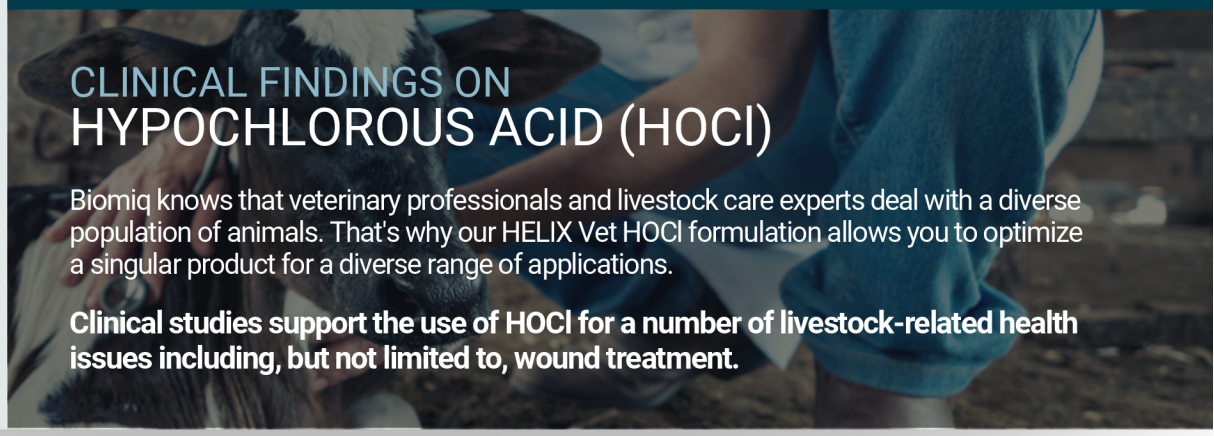
LARGE ANIMALS & LIVESTOCK

HELIX VET



CLINICAL FINDINGS ON HYPOCHLOROUS ACID (HOCl)

Biomiq knows that veterinary professionals and livestock care experts deal with a diverse population of animals. That's why our HELIX Vet HOCl formulation allows you to optimize a singular product for a diverse range of applications.

Clinical studies support the use of HOCl for a number of livestock-related health issues including, but not limited to, wound treatment.

1 PORCINE WOUND MODEL

"The combination of debridement and HOCl wound irrigation can significantly reduce MRSA contamination and facilitate the healing process compared to saline irrigation."

Davis, Gil, J., Li, J., Simms, C., Valdes, J., Solis, M., & Higa, A. (2021). Effect of Mechanical Debridement and Irrigation With Hypochlorous Acid Wound Management Solution on Methicillin-resistant Staphylococcus aureus Contamination and Healing Deep Dermal Wounds in a Porcine Model. Wound Management & Prevention, 67(8), 24–31. https://doi.org/10.25270/wmp.2021.8.2431

2 EQUINE PATHOGENS

"This study showed that single samples of extremely dilute solutions of HOCl are bactericidal in vitro for two common equine pathogens."

Ramey, D. W., & Kinde, H. (2015). Commercial and homemade extremely dilute hypochlorous acid solutions are bactericidal against Staphylococcus aureus and Escherichia coli in vitro. Journal of Equine Veterinary Science, 35(2), 161-164.

3 MASTITIS & KERATOCONJUNCTIVITIS IN CATTLE

"Hypochlorous acid eye spray used to treat experimentally induced IBK had a rapid killing effect on M. bovis, aided in reduction of pain, and decreased healing times with no detectable residues or alteration in sodium or chloride in body tissues."

Gard, J., Taylor, D., Maloney, R., Schnuelle, M., Duran, S., Moore, P., ... & O'Conner, A. M. (2016). Preliminary evaluation of hypochlorous acid spray for treatment of experimentally induced infectious bovine keratoconjunctivitis. The Bovine Practitioner, 180-189.

"This is the first study to use hypochlorous acid in mastitis. In conclusion, this preparation could be used to treat subclinical mastitis as an alternative agent to antibiotics."

ÇETİN, H., Hakan, G. E. Ö. Y. E., & SAKARYA, U. C. P. S. (2018). INVESTIGATION OF INTRAMAMMARY HYPOCHLOROUS ADMINISTRATION IN CATTLES WITH SUBCLINICAL MASTITIS.

4 AVIAN DISEASES

"The virulent Newcastle disease virus (NDV) strain Sato, too, was immediately inactivated by SAHW containing 50 ppm chlorine in the aqueous phase. These data suggest that SAHW containing 100 ppm chlorine can be used for aerosol disinfection of NDV in farms."

Hakim, H., Thammakarn, C., Suguro, A., Ishida, Y., Nakajima, K., Kitazawa, M., & Takehara, K. (2015). Aerosol disinfection capacity of slightly acidic hypochlorous acid water towards Newcastle disease virus in the air: an in vivo experiment. Avian Diseases, 59(4), 486-491.

"When HOCl solutions were sprayed directly on the virus on rayon sheets for 10 sec, the solutions of 100 and 200 ppm could inactivate AIV immediately after spraying, while 50 ppm solution required at least 3 min of contact time. In the indirect spray form, after 10 sec of spraying, the lids of the dishes were opened to expose the virus on rayon sheets to HOCl. In this form, the 200 ppm solution inactivated AIV within 10 min of contact, while 50 and 100 ppm could not inactivate it. These data suggest that HOCl can be used in spray form to inactivate AIV at the farm level."

Hakim, H., Thammakarn, C., Suguro, A., Ishida, Y., Kawamura, A., Tamura, M., ... & Takehara, K. (2014). Evaluation of sprayed hypochlorous acid solutions for their virucidal activity against avian influenza virus through in vitro experiments. Journal of Veterinary Medical Science, 14-0413.

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