THE UNIVERSITY OF ILLINOIS STUDY

"Disinfection and Sterilization"

G. Sykes (1965)
S.K. Kapoor (1968)

The information below lists some of the results of the University of Illinois study that compared the effectiveness of hypochlorous acid and hypochlorite ions.

EFFECTIVENESS AGAINST E. COLI:

This organism is used as a standard test for the effectiveness of disinfectants against bacteria. Destruction of E. coli indicates that other bacteria which infect animals and spoil foodstuffs will also be destroyed. Please note that 120 times less chlorine in the form of hypochlorous acid (active ingredient in Wysiwash) is needed than liquid chlorine (liquid bleach) to destroy bacteria.

Examples below are organisms that cause:

- Acute and chronic inflammation, i.e., mastitis and septic wounds (staphylococci and streptococci);
- Bacterial diarrheas (e.g., E. coli) in pigs and poultry;
- Salmonella which is a common cause of food poisoning, particularly in poultry products.

EFFECTIVENESS AGAINST B. METIENS SPORES:

A typical food spoilage organism that is very resistant to disinfection and heat. Please note that 40 times less chlorine in the form of hypochlorous acid is needed than hypochlorite ions to destroy the spores.

Also note the rapid destruction of the spores (20 seconds) at 750 ppm hypochlorous acid compared to 1000 ppm hypochlorite ion, which needs 70 minutes for complete kill.

Spore-forming bacteria occur in soil and can be present in considerable numbers in dust.

Examples are:

- B. Cereus. This causes mastitis and is also frequently responsible for the spoilage of dairy products.
- B. Botulinum. This is responsible for very severe food poisoning in canned foods.

EFFECTIVENESS AGAINST VIRUSES:

Polio type 3 virus is one of the most resistant viruses and is also frequently used as a standard test for disinfectants. Note that 50 times less hypochlorous acid is required than hypochlorite ions for destruction of the virus. Viruses are extremely susceptible to even very low levels of free chlorine, as low as .02 ppm. In nature, however, they occur in close association with living cells and organic debris, which affords them protection.

Pressure spraying with chlorinated water ***rolls over*** debris and thus exposes the virus to chlorine and destroys it. The destruction of organic material by chlorine results in a decrease in odor and reduces the presence of insects such as flies, which are known transmitters of viral diseases. Particular applications here are for dog kennels (odor/parvovirus); hog pens (viral pneumonia); breeding areas; poultry houses, etc.