

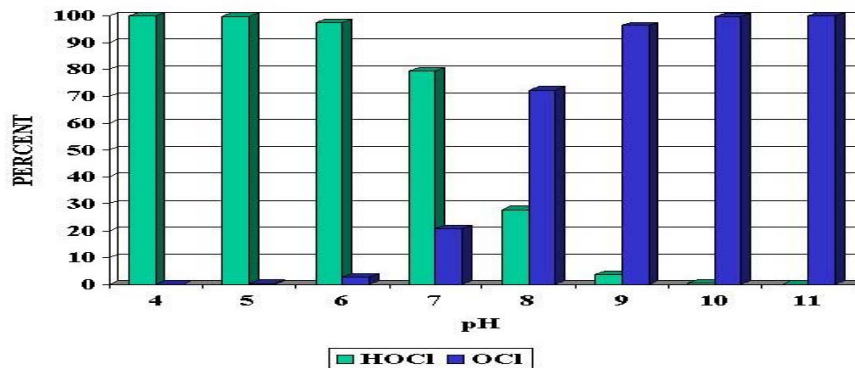


Worthwhile Operational Guidelines & Suggestions

BROILER PROCESSING TIMELY INFORMATION – FEBRUARY 2002

CHLORINE AS A SANITIZER

Chlorine is the most widely used sanitizer in poultry processing and use levels of 20 (rinses) to 50 ppm (chillers) is approved by the FSIS. When diluted in water, be it chlorine gas (Cl_2), chlorine dioxide (ClO_2), liquid sodium hypochlorite (NaOCl) or calcium dry bleach (CaOCl_2), all chlorine sources produce hypochlorous acid (HOCl) and either residual hydrochloric acid (HCl with chlorine gas) or corresponding alkali (sodium or calcium hydroxide). Depending upon the pH of the solution, HOCl will then ionize to produce hypochlorite ion (OCl^-). More HOCl is formed when the pH of the solution is <7.0 (see Figure). The HOCl is substantially better as a sanitizer than OCl^- . However, in the presence of nitrogenous matter (i.e., protein), both are instantaneously converted to low sanitizing chloramines. Calcium hypochlorite is more pH stable and tends to provide more HOCl than its sodium counterpart. To maximize the efficacy of chlorine in the chiller: reduce organic built-up (overflow), monitor and adjust pH to <7.0 (via addition of CO_2 or organic acids), chlorinate make-up water, as well as the re-circulated water, and inject chlorine from the bottom or sides of the chiller.



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