

ISSN 1682-8356  
ansinet.org/ijps



INTERNATIONAL JOURNAL OF  
**POULTRY SCIENCE**

**ANSI***net*

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## **Efficacy of a Post-Chill Precure™ Treatment<sup>1</sup> (pH = 1.5) for Reduction of *Salmonella* on Inoculated Broilers**

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**Abstract:** The USDA has strict regulations regarding the incidence of *Salmonella* on post-chill poultry. The poultry industry is encouraged to use USDA-approved methods for controlling *Salmonella* and other potential pathogens on processed poultry. Thus, the objective of this study was to determine the antimicrobial effects of a post-chill Precure™ (Safe Foods Corporation, N. Little Rock, AR) treatment (pH = 1.5) on the levels of *Salmonella* on broiler carcasses. Precure™ is listed as a solution of GRAS acids for use by FDA and is listed as a safe and suitable ingredient by USDA for use on poultry. In this study, broiler carcasses (n=30) were obtained from a local USDA-inspected poultry processing facility and were transported on ice to MCA Services (Rogers, AR). Immediately upon arrival at the laboratory, all carcasses were individually inoculated with approximately 350 cells of *Salmonella* to assure that all carcasses in the study would be contaminated with *Salmonella*. The *Salmonella* culture was enumerated the day prior to the study to determine the approximate number of cells that would be inoculated onto the surface of each carcass. After inoculation, the carcasses were allowed to sit undisturbed for 30 minutes to allow for bacterial attachment. The 30 carcasses were then randomly divided into two groups. Fifteen of the carcasses were used as a control and were not treated. The remaining 15 carcasses were subjected to a room temperature 30-second dip in Precure™ (pH = 1.5) followed by a 30-second drip period. All carcasses were individually bagged in sterile poultry rinse bags and were held at 40°F for 4 hours. Carcasses were then subjected to a whole carcass rinse in accordance with USDA/FSIS standard laboratory procedures in Butterfield's Phosphate Diluent. The resulting rinse fluid was microbiologically evaluated using Aerobic Plate Count Petrifilm™<sup>3</sup> for enumeration (colony forming units per mL) and the BAX<sup>®4</sup> System PCR assay for presence or absence of *Salmonella*. As would be expected, all carcasses (100%) were positive for *Salmonella* in the control group while in the Precure™-treated group only 40% of the carcasses were *Salmonella* positive. The average level of total organisms using Petrifilm™ was 2.6 logs for the control group and 1.3 logs for the Precure™-treated group (95% reduction). It should be noted that Petrifilm™ would not only recover the inoculated *Salmonella* culture but also any indigenous organisms that may have been present. Results from this study demonstrate that the commercially available Precure™ (pH = 1.5) solution can be used as a post-chill treatment to control the incidence and levels of *Salmonella* and other naturally occurring microorganisms on broiler carcasses.

**Key words:** Precure™, post-chill dip, *Salmonella*, broilers

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