



Worthwhile Operational Guidelines & Suggestions

BROILER PROCESSING TIMELY INFORMATION – APRIL 2011

Use of Salt in Carcass Chilling

The primary purpose of chilling of poultry products (whole carcasses, parts, giblets) is to limit the growth of both pathogenic and food spoilage organisms. The rate of chilling also has some influence on taste, texture and appearance of the final products. Processors are always looking for shorter chilling times, minimum weight loss, lower capital and operating expenses, and predictable processes to meet their internal/customer/regulatory objectives without sacrificing product safety and quality.

Chilling is a function of three important parameters: 1. Total chilling time; 2. Chiller temperature, and 3. Rate of heat transfer. Both convection and conduction are involved in the transfer of heat from the product surface to the chilling medium. The driving force for convection is the temperature differential between the product and the chilling media (water or air). Conduction of heat and/or cold depends of carcass size and composition. Heat transfer rates are often enhanced by increasing the speed of cooling medium around the product.

Salt have been used in water chilling systems to reduce the freezing point of pure water. Salt is a permitted additive in chill water for raw poultry products according to the USDA ([9 CFR 424.21](#)). When the amount of salt is 70 pounds or below in 10,000 gallons of water, the salt would not need to be labeled because it is considered as an incidental additive. However, a retained water statement would be mandatory if the product absorbed the chiller solution. On the other hand, when salt is in amounts from above 70 pounds up to 700 pounds per 10,000 gallons of water, the water and salt would have to be declared on the label since both substances are then considered additives. A special labeling statement would be required, e.g., "Brine Chilled in Water and Salt" or "Chilled in Water and Salt." When the pickup of the solution in the carcasses or parts is less than 0.5 percent, the product would not need a percentage declaration in the special labeling statement. In situations where the pickup of the solution is 0.5 percent or greater, the special labeling statement would include the percent of solution rounded to the nearest whole number, e.g., "Chilled in 1% Water and Salt." Similar approach is used in the fisheries industry where fish are chilled with flake ice containing salt (~500 g/ton).

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