# Worthwhile Operational Guidelines & Suggestions

## Physical Hazard Detection

Physical hazards (i.e., foreign matter) in deboned poultry meat are of concern for the safety of consumers as well as the plant equipment. Typically these hazards can be categorized as either internal (i.e., bone and/or cartilage fragments resulting from the evisceration, cut-up and deboning processes) or external in nature (i. e., pebbles, stones, glass and metal fragments). For years, most processors have relied on manual or visual evaluation and sorting of the deboned meat to meet increasingly narrow customer specifications and to reduce costly customer complaints. Visual inspection of the meat following automatic and cone deboning reduced the incidence of foreign matter contamination in boneless-skinless meat. However, visual inspection of the meat has only been marginally effective in assuring product safety and quality if one considers the labor use, line efficiency, and consistency issues. Automatic detection systems (primarily x-ray technology) were introduced to alleviate these concerns. Physical hazard detection methods have been steadily improving in sophistication and applied technology. Combination of x-rays with other sensors (color vision, light emitting diodes, lasers, etc.) have given the equipment manufacturers increased sensitivity, accuracy and speed (up to 100 fillets per minute), with low rate of false-positives. Detectors are often installed in-line with the automatic or cone-deboning lines for timely removal of bone (mostly clavicle and fan bones) and cartilage fragments often encountered in boneless-skinless poultry meat production. Furthermore, new detection systems are designed to send real-time product images to the trimmers or QC personnel via computer terminals for efficient removal of the defects, saving time and reducing trim losses. Optimal process control and product quality may also be achieved by immediate feedback to the automatic deboning machines for timely adjustments. Future developments in physical hazard detection look even more exciting, as new technologies will allow processors to not only detect various inorganic materials (including plastics) on their products, but will also be equipped (i.e., robotics) for their prompt and automatic removal.

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