

Cured Meat and Poultry Operations Related askFSIS Questions

Food Ingredients Approved For Use in Meat/Poultry Products

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If a raw comminuted product that is to be fully cooked exceeds the maximum allowable ppm **in-going** sodium nitrite listed in regulation 9 CFR 424.21 or [FSIS Directive 7620.3, Processing Inspector's Calculation Handbook](#) (Table II, pg 12) at the formulation step, would the cooked product be acceptable for release into commerce if the sodium nitrite levels in the finished product were below the regulatory limit of 200 ppm?

No. A raw comminuted product that exceeds the maximum allowable ppm of a restricted ingredient at formulation would be considered "adulterated" in accordance with 9 CFR 301.2. This adulterated product may not be reworked or reconditioned and is not eligible to bear the mark of inspection.

Verification of 9 CFR 319.107, Bacon Yield

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When performing a PHIS Percent Yield/Shrink **task**, what information do Inspection Program Personnel (IPP) need to verify compliance with the bacon regulatory standard of identity, [9 CFR 319.107](#)?

The bacon regulatory standard of identity states:

The weight of cured pork bellies ready for slicing and labeling as "Bacon" shall not exceed the weight of the fresh uncured pork bellies.

In other words, the pumped/smoked pork bellies are **required** to return to green weight (i.e., 100% yield). IPP are to continue to verify the regulatory **requirement** by completing the Percent Yield/Shrink **task** at the current frequency. Through record review and direct observation, IPP are to verify the effective implementation of ongoing control programs that address non-food safety issues ([FSIS Directive 7000.1](#), Section VI,D). Establishments may have control programs based on X-bar and R charts, cumulative sum, X-bar and sigma, or similar statistical programs to verify product labeled as "Bacon" returns to green weight on a lot basis over time. Through these

programs, typically plotted over time, establishments may detect small variations and adjust their processes accordingly.

For example, establishments may use an X-bar and R (range) chart to assess the system's stability or demonstrate the establishment's ability to consistently meet the regulatory standard of 100% yield with minimal variation. A stable system may contain data above and below 100% yield; however, there should be minimal deviation over time. A system that does not exhibit stability would have excessive deviation over time. Bacon yield control programs should not target over 100% yield. After establishments assess stability, they may choose to stratify the data. In other words, depending upon the size of the establishment, there may be entirely different results separated among shifts, workers, different injectors, smokehouses, or lots of materials. Establishments may collect and track the data in a way that allows stratification by time, line, operator, and lots. The stratified data gathered should demonstrate how the establishment knows that it is meeting the regulatory **requirement**.

There are variables in the bacon manufacture process that IPP and the establishment may consider when evaluating process control, such as lean/fat ratio, belly weight, % pump, drip time, smoke schedule, chill schedule, air circulation in the oven or cooler, and number of bellies in the oven or cooler. Typically, a control program will include the collection of a representative sample of bellies from a lot. There is no regulatory **requirement** to develop a control program; however, without a control chart, establishments will have difficulty demonstrating that the process is under control, has changed, or identifying sources of process variability.

IPP should refer to [FSIS Directive 7620.3](#), Processing Inspectors' Calculations Handbook, Chapter 13, for information on yield calculations.