

## Questions and Answers on the Use of Antimicrobial Agents in the Production of Meat and Poultry Products

The following set of questions and answers provide information regarding the requirements for the use of antimicrobial agents in meat and poultry production.

### References

- Final Rule, "Food Ingredients and Sources of Radiation Listed or Approved for Use in the Production of Meat and Poultry Products" (December 1999).
- MOU between FDA and FSIS for Ingredient Approval (January, 2000).
- FSIS Directive 7120.1, "Safe and Suitable Ingredients Used in the Production of Meat and Poultry Products."
- Guidance document on "Ingredients and Sources of Radiation Used to Reduce Microorganisms on Carcass, Ground Beef and Beef Trimmings."
- Guidance Procedures for Notification and Protocol Submission of New Technology, February 2004  
[http://www.fsis.usda.gov/regulations\\_&\\_policies/New\\_Technology\\_Notification\\_&\\_Protocol\\_Submission/index.asp](http://www.fsis.usda.gov/regulations_&_policies/New_Technology_Notification_&_Protocol_Submission/index.asp)
- Federal Register* Notice, "FSIS Procedures for Notification of New Technology" (68 FR 6873) (February, 2003)
- 9 CFR 416.4
- FSIS Directive 6355.1, "Use of Chlorine Dioxide in Poultry Chill Water."
- 9 CFR 424.21(c)
- FSIS Directive 6700.1, "Retained Water in Raw Meat and Poultry Products."
- 21 CFR Part 172, 173, 182, 184
- 21 CFR 101.100(a)(3)(ii)

### 1. Question: What is the definition of a New Technology?

Answer: According to the FSIS *Federal Register* Notice (68 FR 6873) entitled, "FSIS Procedures for Notification of New Technology," FSIS defines a "new technology" as new, or new applications of, equipment, substances, methods, processes or procedures affecting the slaughter of livestock and poultry or processing of meat, poultry, or egg products which could affect product safety, inspection procedures, inspection program personnel safety, or require a waiver of a regulation.

### 2. Question: What is the definition of a processing aid?

Answer: According to the Food and Drug Administration's (FDA) regulations (21 CFR 101.100 (a) (3) (ii)), the definition of a processing aid is:

- a. Substances that are added to a food during the processing of such food but are removed in some manner from the food before it is packaged in its finished form.
- b. Substances that are added to a food during processing, are converted into constituents normally present in the food, and do not significantly increase the amount of the constituents naturally found in food.
- c. Substances that are added to a food for their technical or functional effect in the processing but are present in the finished food at insignificant levels and do not have any technical or functional effect in that food.

Tetracalcium pyrophosphate	To remove feathers from poultry carcasses	Sufficient for purpose	Acceptability determination	None under the conditions of use (1)
Tetrapotassium pyrophosphate	To remove feathers from poultry carcasses	Sufficient for purpose	Acceptability determination	None under the conditions of use (1)
<i>Tenderizing Agents</i>				
Calcium gluconate	Raw meat products	Solutions applied or injected into raw meat shall not result in a gain of 3 percent above green weight	Acceptability determination	Listed by common or usual name in the ingredients statement (2)
Protease preparation derived from <i>Bacillus subtilis</i>	Raw meat products	Solutions applied or injected into raw meat shall not result in a gain of 3 percent above green weight	Acceptability determination	Listed by common or usual name in the ingredients statement (2)
Protease produced from <i>Bacillus subtilis</i> var. <i>amyloliquefaciens</i>	Raw meat products	Solutions applied or injected into raw meat shall not result in a gain of 3 percent above green weight	Acceptability determination	Listed by common or usual name in the ingredients statement (2)
Protease produced from <i>Aspergillus niger</i>	Raw meat cuts and raw poultry muscle tissue of hen, cock, mature turkey, mature duck, mature goose, and mature guinea	Solutions applied or injected into raw meat or poultry tissue shall not result in a gain of 3 percent above green weight	GRAS Notice No. 000089	Listed by common or usual name in the ingredients statement (2)

- 1) The use of the substance(s) is consistent with FDA's labeling definition of a processing aid.
  - 2) Generally Recognized as Safe (GRAS)
  - 3) Secondary Direct Food Additive
  - 4) Direct Food Additive
  - 5) Color Additive
  - 6) Food Contact Substance
- \* Substances identified in bold print in the table are substances that have been added to the directive since it was last issued on December 17, 2002.

poultry which comes into contact with the conveyor belts. Labeling is required if the organic acid(s) exhibit a lasting technical effect on meat or poultry which comes into contact with the treated conveyor belts.

- 13. Question: Are antimicrobial agents other than organic acid(s) permitted to be used on a continuous basis on conveyor belts if they are approved as an antimicrobial agent in the production of meat and poultry products? What are the conditions for their use? When do the antimicrobial agents have to be included on a product label?**

Answer: Yes, antimicrobial agents approved for use in the production of meat and poultry products may be used on conveyor belts provided they are followed by a potable water rinse. Substances listed in 21 CFR 178.1010 may be used in sanitizing solutions on food contact surfaces with only adequate draining (no water rinse) before contact with food.

- 14. Question: Is trisodium phosphate (TSP) permitted to be used as an antimicrobial agent on livestock carcasses, viscera, and parts?**

Answer: TSP may only be used on livestock carcasses according to interim Agency policy.

- 15. Question: Where is TSP allowed to be used as an antimicrobial agent on poultry?**

Answer: FSIS regulations (9 CFR 424.21 (c)) permits the use of TSP on raw post-chill poultry carcasses. In addition, FSIS has permitted the application of TSP to raw poultry carcasses pre-chill by spraying or dipping the carcasses with an 8-12% solution maintained within a temperature range of 65° F to 85° F for up to 15 seconds. FSIS has permitted the use spraying or dipping of poultry giblets for up to 30 seconds with an 8-12% solution of TSP pre-chill.

TSP is also used in some on-line reprocessing operations. Establishments which use on-line reprocessing operate under an experimental exemption listed in 9 CFR 381.3(c). The conditions of use for TSP in on-line reprocessing are limited by the parameters listed in the FSIS approved on-line reprocessing protocol, not the conditions of use listed above.

- 16. Question: Is chlorine dioxide permitted to be used as an antimicrobial agent on livestock carcasses, viscera, and parts?**

Answer: No.

- 17. Question: Is chlorine dioxide allowed to be used as an antimicrobial agent on poultry? What are the conditions for its use?**

Answer: Chlorine dioxide may be used as an antimicrobial agent to treat water in poultry processing as prescribed in FDA's regulations (21 CFR 173.300). Residual chlorine dioxide must not exceed 3 ppm in the poultry processing water.

- 18. Question: Is hydrogen peroxide allowed to be used as an antimicrobial agent on meat and poultry products (e.g. carcasses, parts, processed products)?**

Answer: No, hydrogen peroxide is listed as GRAS in FDA regulations (21 CFR 184.1366) for use as a bleaching agent to treat beef feet and in FSIS regulations (9 CFR 424.21 (c)) as a bleaching agent to treat tripe (followed by a water rinse). It is also a component of peroxyacids (21 CFR 173.370).

- 19. Question: Can any and all antimicrobial agents be used on poultry carcasses during on-line reprocessing?**

Answer: No, on-line reprocessing operations function under an experimental exemption (9 CFR 381.3 (c)). The use of antimicrobial agents in on-line reprocessing are limited by the parameters of the FSIS approved on-line reprocessing protocol.

✓ 20. Question: Can antimicrobial agents be used (spray or dip) on the same carcasses or parts more than once, without labeling?

Answer: Yes, antimicrobial agents may be used more than once. However, the antimicrobial agents must be used in accordance with the approved or accepted conditions of use. Labeling is required unless the use of the substance is consistent with FDA's definition of a processing aid or is a secondary direct food additive.

21. Question: Do all uses of antimicrobial agents need to comply with the requirements of 9 CFR 441.10 for retained water? What are the requirements?

Answer: Yes, any establishment that uses a post-evisceration process that results in water retention in raw livestock or poultry carcasses or parts must maintain on file a written data collection protocol in accordance with 9 CFR 441.10 (c) (1). Any treatment in the chilling process such as antimicrobial treatments should be described in the protocol. An establishment does not have to maintain a protocol on file if it has data or information that clearly demonstrates that its products do not retain water as a result of the process, e.g., spraying boneless meat with antimicrobial agents where the end product does not retain water from the antimicrobial application (FSIS Directive 6700.1).