



edited go here for original: [http://www.fsis.usda.gov/OPPDE/rdad/FRPubs/Docs\\_97-013P.htm](http://www.fsis.usda.gov/OPPDE/rdad/FRPubs/Docs_97-013P.htm)

## TIME-TEMPERATURE TABLES FOR COOKING READY-TO-EAT POULTRY PRODUCTS

The 1999 FSIS final rule, Performance Standards for the Production of Certain Meat and Poultry Products, requires a  $6.5 \log_{10}$  relative reduction ( $6.5 \log_{10}$  lethality) of *Salmonella* for cooked beef, roast beef and corned beef (9 CFR 318.17). Appendix A in the compliance guidelines for this 1999 final rule, included two time-temperature (TT) columns in a table for roast beef, cooked beef and corned beef products. One column was for  $6.5 \log_{10}$  and the other column was for a  $7.0 \log_{10}$  relative reduction of *Salmonella*. The 1999 final rule also established a performance standard for poultry that requires a  $7.0 \log_{10}$  lethality of *Salmonella* in RTE poultry (9 CFR 381.150). The compliance guidelines for this rule provided one temperature each for cooking uncured poultry ( $160^\circ F$ ) and for cured poultry ( $155^\circ F$ ) to meet the performance standard. FSIS did not provide a time-temperature table for cooking poultry at temperatures lower than  $160^\circ F$  because there was inadequate research information at that time.

In order to provide guidance to establishments on the processing of poultry products, FSIS requested ARS to conduct a study to determine the times and temperatures of cooking chicken and turkey to achieve a  $7.0 \log_{10}$  relative reduction of *Salmonella*.

*2001. V. K. Juneja, B. S. Eblen, H. M. Marks. Modeling non-linear survival curves to calculate thermal inactivation of Salmonella in poultry of different fat levels. International Journal of Food Microbiology 70 (2001) 37-51.*

This study provided FSIS with new time/temperature tables for cooking poultry. The proposed performance standards for processed RTE meat and poultry products (issued 2/7/2001 in FR) included these new TT tables for cooking chicken and turkey of different fat contents to achieve a  $7.0 \log_{10}$  relative reduction of *Salmonella*.

--The following page is the data for 12% fat (worst case scenario) for cooking times at different temperatures to achieve the USDA 7 log reduction of *Salmonella* in poultry.

Times for given temperature, fat level, and species needed to obtain  
 7- $\log_{10}$  lethality of *Salmonella*\*

----- fat% = 12 -----

Temperature ( ° F)	Time for Chicken	Time for Turkey
136	81.4 min	70.8 min
137	65.5 min	58.5 min
138	52.9 min	48.5 min
139	43 min	40.4 min
140	35 min	33.7 min
141	28.7 min	28.2 min
142	23.5 min	23.7 min
143	19.3 min	19.8 min
144	15.9 min	16.6 min
145	13 min	13.8 min
146	10.6 min	11.5 min
147	8.6 min	9.4 min
148	6.8 min	7.7 min
149	5.4 min	6.2 min
150	4.2 min	4.9 min
151	3.1 min	3.8 min
152	2.3 min	2.8 min
153	1.6 min	2.1 min
154	1.1 min	1.6 min
155	54.4 sec	1.3 min
156	43 sec	1 min
157	34 sec	50.4 sec
158	26.9 sec	40.9 sec
159	21.3 sec	33.2 sec
160	16.9 sec	26.9 sec
161	13.3 sec	21.9 sec
162	10.5 sec	17.7 sec
163	<10.0 sec	14.4 sec
164	<10.0 sec	11.7 sec
165	<10.0 sec	<10.0 sec

\* The required lethaliites are achieved instantly at the internal temperature in which the holding time is < 10 seconds.

Humidity is to be applied as necessary.