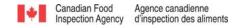
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APPENDIX 2 BACTERIOLOGICAL GUIDELINES FOR FISH AND FISH PRODUCTS

Test Organism ¹	Product Type	Number of sample units	Acceptance number (c) ²	m/g ²	M/g ²	Criteria for action
Escherichia coli	Cooked or ready-to-eat products	5	1	4	40	Reject if 2 or more units exceed m, or if any unit exceeds M
Escherichia coli	Raw molluscan shellfish	5	1	230/100 g	330/100 g	Reject if 2 or more units exceed m, or if any unit exceeds M
Escherichia coli	All other types	5	2	4	40	Reject if 3 or more units exceed m, or if any unit exceeds M
Coagulase- Positive Staphylo- cocci	All types	5	1	1000	10000	Reject if 2 or more units exceed m, or if any unit exceeds M
Salmonella	All types	5	Absent in each 25 g sample or in pooled samples of 125 g.	-	-	Reject if Salmonella spp is detected
Vibrio cholerae	Cooked or ready-to- eat products	5	Absent in each 25 g sample or in pooled samples of 125 g	-	-	Reject if Vibrio cholerae is detected.



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Listeria monocytogenes (From Health Canada's "Policy on Listeria monocytogenes in Ready-to-Eat Foods") available at: http://www.hc-sc.gc.ca/fn-an/legislation/pol/policy_listeria_monocytogenes_2010-eng.php

Product Type / Category ³	Laboratory method to be applied	Action Level
RTE Fish products in which the growth of L. monocytogenes CAN occur and could exceed 100 CFU/g before the end of the stated shelf-life. Includes all products that do not fall in either above-mentioned product types. (Equivalent to Category 1 foods in the HC Listeria policy)*	Presence/absence in 125 g (MFHPB-30° or equivalent) on 5 sample units of 25 g each	Detected
RTE Fish products in which the growth of L. monocytogenes CAN occur but is limited to levels no greater than 100 CFU/g over the course of their stated shelf-life. RTE products that have a refrigerated shelf-life of 5 days or less fall under this category. Other products require validation data demonstrating growth cannot exceed 100 CFU/g ⁵ . (Equivalent to Category 2A foods in the HC Listeria policy)	Enumeration in 50 g (MFLP-74 or equivalent) on 5 sample units of 10 g each	> 100 CFU/g ⁵
RTE Fish products in which growth of L. monocytogenes CANNOT occur over the course of the stated shelf-life. Products with the following characteristics fall under this category: • products that are frozen, or • have a pH<4.4 regardless of the a _w , or • have an a _w <0.92 regardless of the pH, or • have a pH<5.0 AND an a _w <0.94 For products that don't meet the above characteristics, validation data ⁴ demonstrating the absence of growth is required. (Equivalent to Category 2B foods in the HC Listeria policy)	Enumeration in 50 g (MFLP-74 or equivalent) on 5 sample units of 10 g each	> 100 CFU/g ⁵

Notes:

- 1. The analysis of all fish or fishery products shall be conducted in accordance with approved methods
- 2. m number of bacteria per gram separating acceptable from marginally acceptable samples, c number of samples that may exceed this number of bacteria per gram, M no sample can exceed this number of bacteria per gram

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- 3. For further guidance on the determination of a product category, see Figure 1 of this appendix: Decision Tree Determination of the ready-to-eat (RTE) product category that a fish product falls under in accordance with the 2010 Health Canada (HC) *Listeria* Policy.
- 4. See HC's guide on "Listeria monocytogenes Challenge Testing of Ready-to-Eat Refrigerated Foods" for information on challenge testing as part of validation at:

http://www.hc-sc.gc.ca/fn-an/legislation/pol/listeria monocytogenes-eng.php

- 5. Counts between 5 and 100 CFU/g can be an indication of a possible loss of control and should prompt the processor to verify and/or re-evaluate his process controls.
- 6. Recognized methods to determine compliance with bacteriological guidelines as outlined in Health Canada's Compendium of Analytical Methods available at: http://www.hc-sc.gc.ca/fn-an/res-rech/analy-meth/microbio/index-eng.php
- * Health Canada's "Policy on $Listeria\ monocytogenese$ in Ready-to-Eat Foods" will be referred to as the "HC $Listeria\ Policy$ "