

STANDARD 1.6.1

MICROBIOLOGICAL LIMITS IN FOOD

Purpose

This Standard specifies the microbiological food safety criteria which determine the acceptability of a lot or consignment of food for sale or intended for sale. The Schedule to the Standard sets out sampling plans and the limits that a lot or consignment of food must comply with. Foods that fail to meet these limits may pose a risk to human health and must not be offered for sale.

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Schedule Microbiological limits in food

Clauses

1 Interpretation

In this Standard –

c means the maximum allowable number of defective sample units as specified in Column 4 of the Schedule.

defective sample unit means a sample unit in which a microorganism is detected in a sample unit of a food at a level greater than m.

listericidal process means a process that reduces *Listeria monocytogenes* microorganisms in the food to a safe level.

M means the level specified in Column 6 of the Schedule, when exceeded in one or more samples would cause the lot to be rejected.

m means the acceptable microbiological level in a sample unit as specified in Column 5 of the Schedule.

microorganism means a microbiological agent listed in Column 2 of the Schedule.

n means the minimum number of sample units which must be examined from a lot of food as specified in Column 3 of the Schedule in this Standard.

processed in relation to egg product means pasteurised or subjected to an equivalent treatment.

ready-to-eat food means a food that –

- (a) is ordinarily consumed in the same state as that in which it is sold; and
- (b) will not be subject to a listericidal process before consumption; and
- (c) is not one of the following –

- (i) shelf stable foods;

- (ii) whole raw fruits;
- (iii) whole raw vegetables
- (iv) nuts in the shell;
- (v) live bivalve molluscs.

SPC means standard plate count at 30°C with an incubation time of 72 hours.

2 Application

- (1) The foods listed in column 1 of the Schedule in this Standard must, subject to subclause (2), comply with the microbiological limits set in relation to that food in the Schedule.
- (2) The limit for SPC in the Schedule does not apply to powdered infant formula products that contain lactic acid producing microorganisms.

3 Sampling of foods for microbiological analysis

- (1) At the point of sampling, a lot of a food must have taken from it, n sample units as specified in Column 3 of the Schedule in this Standard, unless specified otherwise in this Standard.
- (2) An authorised officer who takes or otherwise obtains a sample of food for the purpose of submitting it for microbiological analysis –
 - (a) shall not divide that sample into separate parts; and
 - (b) where the sample consists of one or more than one sealed package of a kind ordinarily sold by retail, must submit for such analysis that sample in that package or those packages in an unopened and intact condition.
- (3) Where an authorised officer takes or otherwise obtains a sample of food which is the subject of a suspected food poisoning incident or consumer complaint, the results of an analysis conducted on such food are not invalid by reason that fewer sample units than prescribed have been analysed or that a sample unit analysed is smaller than prescribed.

4 Reference methods of analysis

- (1) The following reference methods must be used to determine whether a food has exceeded the maximum permissible levels of microorganisms specified in the Schedule in relation to that food –
 - (a) for a food other than packaged water, packaged ice or mineral water –
 - (i) the relevant method prescribed by Australian Standard AS5013; or
 - (ii) the relevant method referenced by Australian Standard AS5013 and prescribed by the International Organization for Standardization; or
 - (iii) any equivalent method as determined by –
 - (A) Australian New Zealand Standard AS/NZS 4659; or
 - (B) ISO 16140:2003; and
 - (b) for packaged water, packaged ice or mineral water—the relevant method prescribed by Australian New Zealand Standard AS/NZS 4276.
- (2) A reference to a Standard in subclause (1) is a reference to that Standard as in force at the commencement of this provision.

5 Microbiological limits in food

A lot of a food fails to comply with this Standard if the –

- (a) number of defective sample units is greater than c; or
- (b) level of a microorganism in a food in any one of the sample units is more than M.

6 Food in which growth of *Listeria monocytogenes* will not occur

(1) For the purposes of the Schedule, growth of *Listeria monocytogenes* will not occur in a ready-to-eat food if –

- (a) the food has a pH less than 4.4 regardless of water activity; or
- (b) the food has a water activity less than 0.92 regardless of pH; or
- (c) the food has a pH less than 5.0 in combination with a water activity of less than 0.94; or
- (d) the food has a refrigerated shelf life no greater than 5 days; or
- (e) the food is frozen (including foods consumed frozen and those intended to be thawed immediately before consumption); or
- (f) it can be validated that the level of *Listeria monocytogenes* will not increase by greater than 0.5 log cfu/g over the food's stated shelf life.

(2) For the purposes of the Schedule, a ready-to-eat food that does not receive a listericidal process during manufacture is taken to be a food in which growth of *Listeria monocytogenes* will not occur if the level of *Listeria monocytogenes* will not exceed 100 cfu/g within the food's expected shelf life.

(3) For the purposes of subclause (2), a ready-to-eat food that does not receive a listericidal process during manufacture is taken to include –

- (a) ready-to-eat processed finfish; and
- (b) fresh cut and packaged horticultural produce.

SCHEDULE

Microbiological limits in food

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Food	Microorganism	n	c	m	M
Butter made from unpasteurised milk and/or unpasteurised milk products	<i>Campylobacter</i>	5	0	not detected in 25 g	10 ² /g
	Coagulase-positive staphylococci	5	1	10 /g	
	Coliforms	5	1	10 /g	
	<i>Escherichia coli</i>	5	1	3 /g	
	<i>Salmonella</i>	5	0	not detected in 25 g	
	SPC	5	0	5x10 ⁵ /g	
All cheese	<i>Escherichia coli</i>	5	1	10 /g	10 ² /g
Soft and semi-soft cheese (moisture content > 39%) with pH >5.0	<i>Salmonella</i>	5	0	not detected in 25 g	
All raw milk cheese (cheese made from milk not pasteurised or thermised)	<i>Salmonella</i>	5	0	not detected in 25 g	
Raw milk unripened cheeses (moisture content > 50% with pH > 5.0)	<i>Campylobacter</i>	5	0	not detected in 25 g	
Dried milk	<i>Salmonella</i>	5	0	not detected in 25 g	
Unpasteurised milk for retail sale	<i>Campylobacter</i>	5	0	not detected in 25 mL	10 ³ /mL 9 /mL
	Coliforms	5	1	10 ² /mL	
	<i>Escherichia coli</i>	5	1	3 /mL	
	<i>Salmonella</i>	5	0	not detected in 25 mL	
	SPC	5	1	2.5x10 ⁴ /mL	2.5x10 ⁵ /mL
Packaged cooked cured/salted meat	Coagulase-positive staphylococci	5	1	10 ² /g	10 ³ /g
	<i>Salmonella</i>	5	0	not detected in 25 g	
Packaged heat treated meat paste and packaged heat treated pâté	<i>Salmonella</i>	5	0	not detected in 25 g	
All comminuted fermented meat which has not been cooked during the production process	Coagulase-positive staphylococci	5	1	10 ³ /g	10 ⁴ /g 9.2 /g
	<i>Escherichia coli</i>	5	1	3.6 /g	
	<i>Salmonella</i>	5	0	not detected in 25 g	
Cooked crustacea	Coagulase-positive staphylococci	5	2	10 ² /g	10 ³ /g
	<i>Salmonella</i>	5	0	not detected in 25 g	
	SPC	5	2	10 ⁵ /g	
Raw crustacea	Coagulase-positive staphylococci	5	2	10 ² /g	10 ³ /g
	<i>Salmonella</i>	5	0	not detected in 25 g	
	SPC	5	2	5x10 ⁵ /g	

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Food	Microorganism	n	c	m	M
Bivalve molluscs, other than scallops	<i>Escherichia coli</i>	5	1	2.3 /g	7 /g
Ready-to-eat food in which growth of <i>Listeria monocytogenes</i> will not occur	<i>Listeria monocytogenes</i>	5	0	10 ² cfu/g	
Ready-to-eat food in which growth of <i>Listeria monocytogenes</i> can occur	<i>Listeria monocytogenes</i>	5	0	not detected in 25 g	
Cereal based foods for infants	Coliforms <i>Salmonella</i>	5 10	2 0	less than 3 /g not detected in 25 g	20 /g
Powdered infant formula products	<i>Bacillus cereus</i>	5	0	10 ² /g	
	Coagulase-positive staphylococci	5	1	not detected in 1 g	10 /g
	Coliforms	5	2	less than 3 /g	10 /g
	<i>Salmonella</i>	10	0	not detected in 25 g	
	SPC	5	2	10 ³ /g	10 ⁴ /g
Pepper, paprika and cinnamon	<i>Salmonella</i>	5	0	not detected in 25 g	
Dried, chipped, desiccated coconut	<i>Salmonella</i>	10	0	not detected in 25 g	
Cocoa powder	<i>Salmonella</i>	5	0	not detected in 25 g	
Cultured seeds and grains (bean sprouts, alfalfa etc)	<i>Salmonella</i>	5	0	not detected in 25 g	
Pasteurised egg products	<i>Salmonella</i>	5	0	not detected in 25 g	
Processed egg product	<i>Salmonella</i>	5	0	not detected in 25 g	
Mineral water	<i>Escherichia coli</i>	5	0	not detected in 100 mL	
Packaged water	<i>Escherichia coli</i>	5	0	not detected in 100 mL	
Packaged ice	<i>Escherichia coli</i>	5	0	not detected in 100 mL	

Amendment History

The Amendment History provides information about each amendment to the Standard. The information includes commencement or cessation information for relevant amendments.

These amendments are made under section 92 of the *Food Standards Australia New Zealand Act 1991* unless otherwise indicated. Amendments do not have a specific date for cessation unless indicated as such.

About this compilation

This is a compilation of Standard 1.6.1 as in force on **30 October 2014** (up to Amendment No. 150). It includes any commenced amendment affecting the compilation to that date.

Prepared by Food Standards Australia New Zealand on **30 October 2014**.

Uncommenced amendments or provisions ceasing to have effect

To assist stakeholders, the effect of any uncommenced amendments or provisions which will cease to have effect, may be reflected in the Standard as shaded boxed text with the relevant commencement or cessation date. These amendments will be reflected in a compilation registered on the Federal Register of Legislative Instruments including or omitting those amendments and provided in the Amendment History once the date is passed.

The following abbreviations may be used in the table below:

ad = added or inserted	am = amended
exp = expired or ceased to have effect	rep = repealed
rs = repealed and substituted	

Standard 1.6.1 was published in the Commonwealth of Australia Gazette No. P 30 on 20 December 2000 as part of Amendment No. No. 53 (F2008B00630 – 2 October 2008) and has been amended as follows:

Clause affected	A'ment No.	FRLI registration Gazette	Commencement (Cessation)	How affected	Description of amendment
Standard title	149	F2014L01037 29 July 2014 FSC 91 31 July 2014	31 July 2014	rs	Title.
Purpose	124	F2011L01450 8 July 2011 FSC 66 11 July 2011	11 July 2011	am	Spelling of 'micro-organism' to 'microorganism', wherever occurring.
Purpose	149	F2014L01037 29 July 2014 FSC 91 31 July 2014	31 July 2014	rs	Purpose
Table of Provs	149	F2014L01037 29 July 2014 FSC 91 31 July 2014	31 July 2014	am	Consequential amendments relating to amendments to clause 4 and the Schedule and insertion of a new clause 6.
1	78	F2005L01246 26 May 2005 FSC 20 26 May 2005	26 May 2005	rep	Definition of 'food'.
1	123	F2011L00857 25 May 2011 FSC 65 26 May 2011	26 Nov 2012	ad	Definition of 'processed'.

Clause affected	A'ment No.	FRLI registration Gazette	Commencement (Cessation)	How affected	Description of amendment
1	124	F2011L01450 8 July 2011 FSC 66 11 July 2011	11 July 2011	am	Spelling of 'micro-organism' to 'microorganism', wherever occurring.
1	149	F2014L01037 29 July 2014 FSC 91 31 July 2014	31 July 2014	ad	Definitions of 'listericidal process' and 'ready-to-eat food'.
2	124	F2011L01450 8 July 2011 FSC 66 11 July 2011	11 July 2011	rs	Clause.
2(2)	103	F2008L03741 9 Oct 2008 FSC 20 9 Oct 2008	9 Oct 2008	am	Amending the wording 'must not exceed' and 'exceeds'.
2(2)	149	F2014L01037 29 July 2014 FSC 91 31 July 2014	31 July 2014	rs	Subclause.
4	149	F2014L01037 29 July 2014 FSC 91 31 July 2014	31 July 2014	rs	Clause
4(1)	124	F2011L01450 8 July 2011 FSC 66 11 July 2011	11 July 2011	am	Spelling of 'micro-organism' to 'microorganism', wherever occurring.
5	103	F2008L03741 9 Oct 2008 FSC 20 9 Oct 2008	9 Oct 2008	am	Amending the wording 'exceeds'.
5	124	F2011L01450 8 July 2011 FSC 66 11 July 2011	11 July 2011	am	Spelling of 'micro-organism' to 'microorganism', wherever occurring.
6	149	F2014L01037 29 July 2014 FSC 91 31 July 2014	31 July 2014	ad	Clause.
Schedule	62	F2008B00807 19 Dec 2008 FSC 4 17 Sept 2002	17 Sept 2002	rs	References to 'molluscs' replaced with references to 'bivalve molluscs'.
Schedule	66	F2008B00813 23 Dec 2008 FSC 8 22 May 2003	22 May 2003	rep	Entry for <i>Listeria monocytogenes</i> in cooked crustacea.
Schedule	67	F2008B00814 24 Dec 2008 FSC 9 31 July 2003	31 July 2003	am	Correction of minor typographical errors.
Schedule	68	F2008B00815 24 Dec 2008 FSC 10 18 Sept 2003	18 Sept 2003	rs	Entry for comminuted fermented meat.
Schedule	70	F2008B00817 24 Dec 2008 FSC 12 29 April 2004	29 April 2004	am	Entries for <i>Bacillus cereus</i> /g in powdered infant formula products and powdered infant formula products with added lactic acid producing cultures.
Schedule	123	F2011L00857 25 May 2011 FSC 65 26 May 2011	26 Nov 2012	am	Consequential amendment arising from the insertion of a definition of 'processed'.

Clause affected	A'ment No.	FRLI registration Gazette	Commencement (Cessation)	How affected	Description of amendment
Schedule	124	F2011L01450 8 July 2011 FSC 66 11 July 2011	11 July 2011	am	Spelling of 'micro-organism' to 'microorganism', wherever occurring, Schedule title and the entry for 'unpasteurised milk'.
Schedule	149	F2014L01037 29 July 2014 FSC 91 31 July 2014	31 July 2014	rs	Schedule
Schedule	150	F2014L01427 28 Oct 2014 FSC92 30 Oct 2014	30 Oct 2014	am	Correct misspelling of 'desiccated'.