DRAFT AMENDMENT

ISO 11133:2014/DAM 2

ISO/TC **34**/SC **9**

Secretariat: **AFNOR**

Voting begins on:
2017-12-12

Voting terminates on:
2018-03-06

Microbiology of food, animal feed and water — Preparation, production, storage and performance testing of culture media

AMENDMENT 2

Microbiologie des aliments, des aliments pour animaux et de l'eau — Préparation, production, stockage et essais de performance des milieux de culture

AMENDEMENT 2

ICS: 07.100.20; 07.100.30

Member bodies are requested to consult relevant national interests in ISO/TC 147/SC 4 before casting their ballot to the e-Balloting application.

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO 11133:2014/DAM 2:2017(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 34, *Food products*, Subcommittee SC 9, *Microbiology*.

Microbiology of food, animal feed and water — Preparation, production, storage and performance testing of culture media

AMENDMENT 2

Annex K
(normative)

Performance testing of confirmation media and reagents

K.1 General

This Annex specifies control strains for the performance testing of confirmation and characterization media, reagents, dyes, stains and materials described in standards for the microbiological examination of samples from the food chain and water.

For the microbiological media and reagents under test, the inoculum used is a subculture of an isolated colony. Therefore the method of performance testing for these products is qualitative.

The shortest permissible incubation time in the International Standard should be used for the positive control organism(s), whilst the longest permissible incubation time should be used for the negative control organisms.

The strains chosen in Table K.1 have been selected preferentially from those already cited in ISO 11133:2014. If a suitable strain was not available from this source, a strain from the catalogue of organisms compiled by the World Data Centre for Microorganisms (WDCM)[20] has been selected.

In most cases, more than one control strain has been listed in Table K1 for both positive and negative reactions. The user may choose any of the strains cited for positive and negative reactions. Refer to the relevant standard for the expected results for the target organism.

If control strains for performance testing of confirmation media and reagents are already specified in the International Standard, for example as in ISO 10272 (*Campylobacter)* and ISO 10273 (*Yersinia enterocolitica*), they have not been included in Table K.1. In addition, serological reagents have not been included.

If commercially-sourced media or reagents are used, follow the manufacturer's instructions, including time, temperature and conditions of performance. If the instructions do not include control strains, choose a positive and a negative strain from Table K.1.

Table A.1 — Control strains for confirmation media and reagents included in ISO standards from ISO/TC 34/SC 9, ISO/TC34/SC 5 and ISO/TC 147/SC 4

Confirmation medium/ reagent	ISO Standard	Function	Control strains[a]	WDCM[b] numbers	Characteristic reactions
Acetamide broth with Nessler's reagent	16266	Detection of ammonia production from acetamide	*Pseudomonas aeruginosa*	00024 00025 00026	Positive reaction: Yellow to brick red after adding 1-2 drops of Nessler's reagent
			Escherichia coli	00012 00013 00090 00179	Negative reaction: No yellow to brick red colour
Acetate agar (Sodium acetate agar)	21567	Growth on acetate	*Escherichia coli*	00012 00013 00179 00090	Positive reaction: Blue colonies with surrounding medium blue/ green
			Shigella.sonnei *Shigella flexneri*	00127 00125	Negative reaction: No growth or very weak growth, no colour change of the medium (remains green)
Acid phosphatase reagent	14189	Detection of acid phosphatase	*Clostridium perfringens*	00007 00080 00174	Positive reaction: Purplish colour
			Clostridium bifermentans	00079	Negative reaction: No purplish colour
Arginine dihydrolase saline medium	21872	Detection of L-Arginine dihydrolase	*Vibrio fluvialis*	00137	Positive reaction: turbidity and violet/purple colour
			Vibrio parahaemolyticus	00037 00185	Negative reaction: yellow colour
Bile-aesculin-azide agar	7899-2	Detection of aesculin hydrolysis	*Enterococcus faecalis* *Enterococcus faecium*	00009 00087 00176 00177 00178	Positive reaction: Tan to black colour in the surrounding medium
			Aerococcus viridans *Escherichia coli*	00061 00012 00013 00090 00179	Negative reaction: No tan to black colour in the surrounding medium

[a] Strain free of choice

[b] Make reference to the reference strain catalogue available on http://www.wfcc.info for information on culture collection strain numbers and contact details [20]

[c] Some national restrictions and directions may require the use of a different serovar. Make reference to national requirements relating to the choice of *Salmonella* serovars

[d] Non-toxigenic strain of *E.coli* serotype O157

[e] Weak coagulase - producing strain of *S.aureus*

Table A.1 *(continued)*

Confirmation medium/ reagent	ISO Standard	Function	Control strains[a]	WDCM[b] numbers	Characteristic reactions
CAMP medium with *Staphylococcus aureus* WDCM 00034 and *Rhodococcus equi* WDCM 00028	11290-1 11290-2	Detection of CAMP reaction	*Listeria monocytogenes*	00020 00021	Positive reaction: Enhanced zone of β-haemolysis at the intersection of the test strain with each of the cultures of *Staphylococcus aureus* and *Rhodococcus equi*
			Listeria ivanovii	00018	Negative reaction: No enhanced zone
			L.innocua	00017	No zone
Carbohydrate utilization broths with different carbohydrates and different indicators	11290-1 11290-2 21567 10273 22964	Detection of carbohydrate fermentation	*Escherichia coli*	00012 00013 00090 000179	Positive reaction: Change of colour to yellow
			Proteus mirabilis	00123	Negative reaction: no change in colour
Catalase reagent (3 % hydrogen peroxide solution)	9232 10272-1 10272-2 11290-1 11290-2	Detection of catalase after adding hydrogen peroxide solution	*Staphylococcus aureus*	00032 00034	Positive reaction: Formation of bubbles of oxygen
			Campylobacter jejuni	00090	
			Listeria monocytogenes	00005 00020 00021	
			Listeria innocua	00017	
			Listeria ivanovii	00018	
			E.faecalis	00009 00087 00176	Negative reaction: No formation of bubbles of oxygen
			Enterococcus faecium	00177 00178	
			Lactobacillus delbreuckii ssp. bulgaricus	00121	
Citrate agar (Christensen's citrate agar)	21567	Growth on citrate	*Enterobacter aerogenes*	00175	Positive reaction: cream/pink growth with surrounding medium red
			Enterobacter cloacae	00083	
			Shigella sonnei	00127	Negative reaction: No growth
			Shigella flexneri	00125 00126	
Glucose agar O-F medium with overlay	11059 21528-1 21528-2	Production of acid from glucose	*Escherichia coli*	00012 00013 00090 00179	Positive reaction: Yellow colour
			Pseudomonas aeruginosa	00025	Negative reaction: growth, but no yellow colour development
			Pseudomonas fluorescens	00115	

[a] Strain free of choice

[b] Make reference to the reference strain catalogue available on http://www.wfcc.info for information on culture collection strain numbers and contact details [20]

[c] Some national restrictions and directions may require the use of a different serovar. Make reference to national requirements relating to the choice of *Salmonella* serovars

[d] Non-toxigenic strain of *E.coli* serotype O157

[e] Weak coagulase - producing strain of *S.aureus*

Table A.1 *(continued)*

Confirmation medium/ reagent	ISO Standard	Function	Control strains[a]	WDCM[b] numbers	Characteristic reactions
Glucose MRS broth with overlay agar	9232	Detection of CO_2 production	*Lactobacillus brevis*	00099	Positive reaction: Agar layer detaches itself from the underlying contents
			Lactobacillus delbrueckei ssp. bulgaricus	00102	Negative reaction: no gas production, agar layer not detached.
Indole reaction medium/ reagent Tryptone/ tryptophan medium with indole reagent (Kovac's reagent) Tryptone/ tryptophan saline medium with indole reagent (Kovacs reagent) Indole reagent (Kovacs reagent)	6579 16654 21567 21872 11866-1 11866-2	Detection of indole formation from tryptophan	*Escherichia coli*	00012 00013 00014[d] 00090 00179 00037	Positive reaction: Formation of a red ring within 10 min
			Vibrio parahaemolyticus	00138 00185	
			Vibrio cholerae	00203	
			Vibrio vulnificus	00139	
			Enterobacter aerogenes	00175	Negative reaction: Yellow/brown ring within 10 min
			Citrobacter freundii	00006	
			Salmonella Typhimurium	00031	
			Salmonella Enteritidis	00030	
Indole reagent (Vracko and Sherris reagent)		Detection of indole formation on membrane filters	*Escherichia coli*	00012 00013 00090 00179	Positive reaction: Development of a pink colour within a few minutes
			Enterobacter aerogenes	00175	Negative reaction: no pink colour development
			Citrobacter freundii	00006	
			Salmonella Typhimurium	00031	
			Salmonella Enteritidis	00030	
King's B medium	16266	Detection of fluorescein	*Pseudomonas aeruginosa*	00024 00025 00026	Positive reaction: presence of fluorescence under UV radiation (360 ± 20) nm
			Escherichia coli	00012 00013 00090 00179	Negative reaction: no fluorescence

[a] Strain free of choice

[b] Make reference to the reference strain catalogue available on http://www.wfcc.info for information on culture collection strain numbers and contact details [20]

[c] Some national restrictions and directions may require the use of a different serovar. Make reference to national requirements relating to the choice of *Salmonella* serovars

[d] Non-toxigenic strain of *E.coli* serotype O157

[e] Weak coagulase - producing strain of *S.aureus*

Table A.1 *(continued)*

Confirmation medium/ reagent	ISO Standard	Function	Control strains[a]	WDCM[b] numbers	Characteristic reactions
KOH (Reagent for Gram typing test) (3% potassium hydroxide solution)	17995	Gram Typing	*Escherichia coli*	00012 00013 00090 00179	Gram-negative: The colony material becomes stringy
			Staphylococcus aureus	00032 00034	Gram-positive: Colony material remains smooth
Lactose-gelatin medium	7937	Detection of gas formation, acid formation and gelatin liquefaction	*Clostridium perfringens*	00007	Positive reaction: Presence of gas, yellow colour and gelatin liquefaction
			Hafnia alvei	00095	Negative reaction: No colour change or red, no gelatin liquefaction
LS (Lactose sulfite) medium	7937	Detection of lactose fermentation and sulfite reduction	*Clostridium perfringens*	00007	Positive reaction: Gas production: Durham tubes more than one quarter full of gas Iron sulfite production: formation of black precipitate
			Clostridium sporogenes	00008	Negative reaction: Gas production but no blackening
Lysine decarboxylase medium Lysine decarboxylase saline medium	6579 21567 19250 21872 22964	Detection of L-Lysine decarboxylase (LDC)	*Salmonella* Typhimurium[c]	00031	Positive reaction: Medium remains purple after incubation and is turbid
			Salmonella Enteritidis[c]	00030	
			Enterobacter aerogenes	00175	
			Vibrio parahaemolyticus	00185	
			Proteus mirabilis	00023	Negative reaction: Medium changes from purple to yellow
			Citrobacter freundii	0006	
			Cronobacter sakazakii	00214	
			Cronobacter muytjensis	00213	
Malachite green oxalate solution	21871	Detection of spores by microscopic examination	*Bacillus cereus*	00001	Positive reaction: Green stained spores
			none	—	Negative reaction: No green-stained spores

[a] Strain free of choice

[b] Make reference to the reference strain catalogue available on http://www.wfcc.info for information on culture collection strain numbers and contact details [20]

[c] Some national restrictions and directions may require the use of a different serovar. Make reference to national requirements relating to the choice of *Salmonella* serovars

[d] Non-toxigenic strain of *E.coli* serotype O157

[e] Weak coagulase - producing strain of *S.aureus*