Livsmedelsverket
Swedish Food Agency

CRM Certificate
Issued by an Accredited Laboratory
File number: Dnr 2026/02633

SWEDAC ACKREDITERING
Accred. no. 1457
Production of reference materials
ISO 17034

RM Food 2026:12

Description

Table 1. General description of RM Food 2026:12

Description	
Certificate version	1.0
Issue date	2026-08-27
Designation	RM Food 2026:12
Batch no	458
Date of production	2026-04-01
Manufacturer	Swedish Food Agency, Sweden
Storage	–18 °C or lower (but not lower than –55 °C)
Batch expiry date	2028-06-30

Content

Table 2. Microorganisms included in RM Food 2026:12

Microorganism	Strain*
Klebsiella ornithinolytica / Raoultella ornithinolytica[1]	SLV-089
Escherichia coli	SLV-082
Staphylococcus aureus	SLV-280
Enterococcus faecalis	SLV-051
Bacillus cereus	SLV-516
Candida glabrata	SLV-052
Clostridium perfringens	SLV-442

* Internal strain identification number, Swedish Food Agency.
[1] Designated as *Klebisella oxytoca* in previous batches of this CRM.

Property values

Table 3. Quality control of RM Food 2026:12. The results are based on analysis of at least 10 individual vials, and are valid for a reconstitution volume of 104 ml. All values are expressed in $\log_{10}$ cfu ml^{-1}.

Analysis	x_{CRM}	s_{CRM}	u_{CRM}	Acceptance limits	Method
Aerobic microorg., 30 °C	5.62	0.04	0.27	5.09 – 6.15	NMKL 86:2013
Psychrotrophic microorg. 6.5 °C	5.38	0.08	0.28	4.82 – 5.94	NMKL 86:2013
Contaminating microorg.	5.55	0.06	0.26	5.03 – 6.08	ISO 13559:2002
Enterobacteriaceae	5.03	0.05	0.26	4.52 – 5.55	NMKL 144:2005
Coliform bacteria, 37 °C	4.98	0.06	0.27	4.43 – 5.53	NMKL 44:2004
Coliform bacteria, 44 °C	4.33	0.08	0.29	3.76 – 4.91	NMKL 125:2024
Escherichia coli	4.33	0.08	0.29	3.76 – 4.91	NMKL 125:2024
Presumptive *Bacillus cereus*	4.35	0.08	0.29	3.76 – 4.95	NMKL 67:2021
Coagulase pos. staphylococc	4.83	0.04	0.26	4.32 – 5.34	NMKL 66:2009
Enterococci	4.50	0.03	0.27	3.96 – 5.04	NMKL 68:2011
Lactic acid bacteria	4.51	0.06	0.26	3.98 – 5.03	NMKL 140:2023

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Analysis	x_{CRM}	s_{CRM}	u_{CRM}	Acceptance limits	Method
Clostridium perfringens	2.37	0.08	0.27	1.82 – 2.92	NMKL 95:2009
Anaerobic sulph. red. bact.	2.09[a]	0.11[a]	0.30[a]	1.49 – 2.69[a]	NMKL 56:2015
Yeasts	4.54	0.06	0.29	3.96 – 5.11	NMKL 98:2005

x_{CRM}: Property value, to be used for start-up control chart.

s_{CRM}: Standard deviation of the property value, can be used for start-up control chart.

u_{CRM}: Standard uncertainty of the property value (includes uncertainty contributions from characterisation, homogeneity, transportation and method differences).

The lower/upper acceptance limits are calculated as: $x_{CRM} \pm 2 * u_{CRM}$ (expanded uncertainty at a 95 % confidence interval, with $k = 2$).

[a] Results can be expected to be higher or lower than x_{CRM}, depending on the manufacturer of the medium. The stated property values and acceptance limits are determined with NMKL 56:2015, and ISA media from Merck (1.10864). Other media may give slightly different results for the target strain of *C. perfringens*.

Intended use

This certified reference material (CRM) is designed for internal quality control of analytical work at food microbiology laboratories. After reconstitution, the test material can be used for control of quantitative food microbiology analyses, as well as for direct or indirect quality control of microbiological media.

Quality control

The CRM has been tested for homogeneity at the Swedish Food Agency. No statistically relevant difference has been observed between vials.

Commutability

The values in Table 3 have been calculated for and apply to the respective methods specified. They are generally applicable to other similar methods, however results may differ from those obtained during the quality control at the Swedish Food Agency.

The standard uncertainties (u_{CRM}) of the property values include uncertainty contributions from method differences (s_R), which are calculated from historical distributions of results from different methods on PT samples with a similar composition. Consequently, the standard uncertainties and acceptance limits can, in most cases, be considered applicable to comparable microbiological methods.

Traceability

Homogeneity, property values, standard deviations and control limits are calculated in accordance with ISO 17034 and ISO 33405. All values are metrologically traceable to the respective strains in the Swedish Food Agency's internal culture collection (Table 2).

Accreditation

The Swedish Food Agency, with accreditation number 1457, is accredited by Swedac as a producer of certified reference materials in accordance with SS-EN ISO 17034. All manufacture and quality control supporting the production of CRMs are performed by the Swedish Food Agency in compliance with the requirements of SS-EN ISO/IEC 17025, unless otherwise stated in this certificate.

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Preparation of simulated food sample

Reconstitute the vial content according to the instructions on the last page.

Please note that the final 104 ml corresponds to the undiluted sample to be analysed.

The Swedish Food Agency recommends using peptone water according to ISO 6887-1:2017 for the initial sample preparation and subsequent dilutions. Laboratories may use other diluents at their own discretion.

Analyses

The analyses should be performed in accordance with the methods used by the individual laboratory.

Control charts

Instructions for the construction of control charts are available at our website:

www.livsmedelsverket.se/RM-micro

Manufacturer and contact information

Manufacturer:	Swedish Food Agency (Livsmedelsverket)
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Approved by

Jonas Ilbäck

Jonas Ilbäck

RM Production Coordinator

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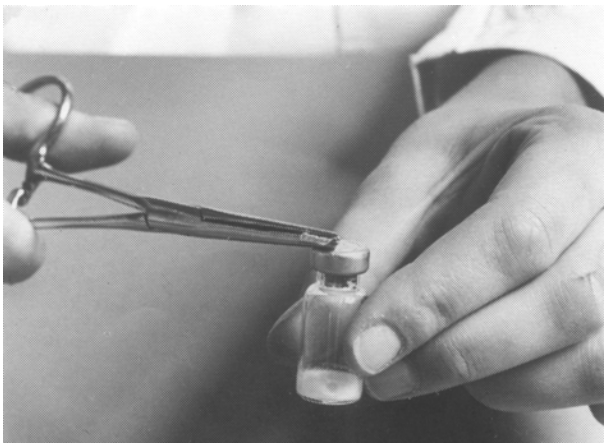
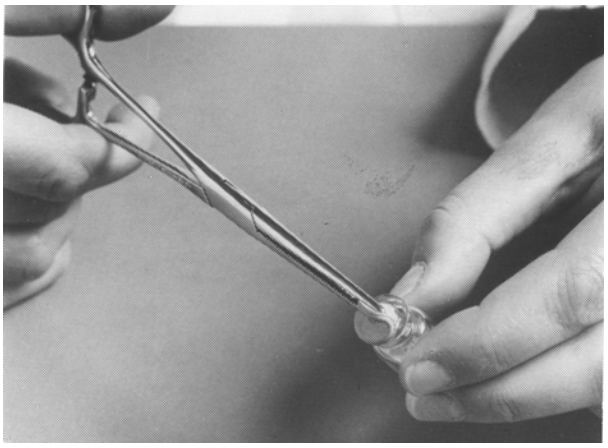
Swedish Food Agency

Sample preparation of freeze-dried cultures in glass vial (RM Food 2026:12)

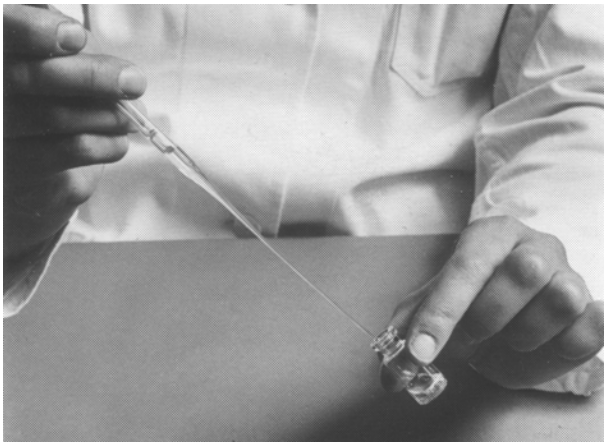


1. Twist the flap on the aluminium cap in the direction of the arrow.

2. Remove the aluminium cap.



3. Remove the rubber plug.



4. Add 1 ml diluent with a sterile pipette.

5. Let the content dissolve (1–5 minutes).

6. Using a sterile pipette, transfer the suspension to a sterile bottle containing 100 ml room temperature diluent.

8. Add another 1 ml and carefully rinse the walls of the vial with the pipette.

9. Transfer the suspension to the bottle containing 100 ml diluent.

10. Repeat steps 7 and 8 two more times with the same pipette.

11. After thorough mixing, manually or by magnetic stirring, the 104 ml sample is ready for analysis.

12. Perform the analyses within 60 minutes.*

**** For the majority of analyses, the final 104 ml sample is normally viable for up to 60 minutes. From experience however, lower results are often obtained – especially for Gram-negative microorganisms – when the time between sample preparation and analysis is too long. As a general rule, it is therefore recommended to begin the analysis immediately after sample preparation.***

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