Reference Material Datasheet

Version:	1.0
Issue date:	2023-10-09
Designation:	**RM Food 2023:12**
Batch no:	**390**
Date of production:	2023-04-26
Manufacturer:	Swedish Food Agency, Sweden
Storage:	–18 °C or lower (but not lower than –55 °C)
Batch expiry date:	2024-12-31

Manufacturer and contact information

Swedish Food Agency	
Company name	Swedish Food Agency (Livsmedelsverket)
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Intended use

This reference material 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.

Content

Table 1. Microorganisms included in RM Food 2023:12

Microorganism	Strain*
Klebsiella oxytoca	SLV-089
Escherichia coli	SLV-082
Staphylocccus aureus	SLV-350
Enterococcus faecalis	SLV-051
Bacillus cereus	SLV-556
Candida glabrata	SLV-052
Clostridium perfringens	SLV-442

* Internal strain identification number, Swedish Food Agency

Quality control

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

Property values

Table 2. Quality control of RM Food 2023:12. The results are from analysis of 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_{RM}	s_{RM}	u_{RM}	Acceptance limits	Method
Aerobic microorg., 30 °C	5.73	0.05	0.26	5.21 – 6.24	NMKL 86:2013
Contaminating microorg.	5.73	0.05	0.26	5.22 – 6.25	ISO 13559:2002
Lactic acid bacteria	5.37	0.03	0.25	4.87 – 5.88	NMKL 140:2007
Coliform bacteria, 37 °C	4.94	0.05	0.26	4.43 – 5.46	NMKL 44:2004
Coliform bacteria, 44 °C	4.19	0.07	0.26	3.66 – 4.72	NMKL 125:2005
Enterobacteriaceae	4.97*	0.06*	0.27*	4.44 – 5.51*	NMKL 144:2005
Escherichia coli	4.19	0.07	0.26	3.66 – 4.72	NMKL 125:2005
Anaerobic sulph. red. bact.	3.47	0.04	0.26	2.94 – 3.99	NMKL 56: 2015
Clostridium perfringens	3.55	0.05	0.26	3.02 – 4.08	NMKL 95:2009
Coagulase pos. staphylococc	4.76	0.05	0.26	4.24 – 5.27	NMKL 66:2009
Enterococci	5.39	0.06	0.26	4.87 – 5.91	NMKL 68:2011
Presumptive *Bacillus cereus*	4.70	0.06	0.26	4.18 – 5.22	NMKL 67:2021
Yeasts	4.38	0.05	0.26	3.85 – 4.91	NMKL 98:2005

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

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

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

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

* Values adjusted after additional analysis of 5 vials.

Traceability

Homogeneity, property values, standard deviations and control limits are calculated in accordance with ISO 17034 and ISO Guide 35. All values are metrologically traceable to the respective strains in the Swedish Food Agency's internal culture collection (Table 1).

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 uses peptone water (0.1 %) with NaCl (0.85 %) as diluent.

Analyses

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

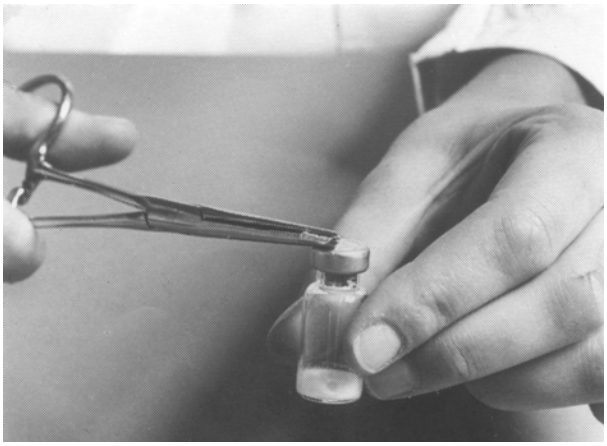
Control charts

Instructions for the construction of control charts are available at our website:
www.livsmedelsverket.se/RM-micro

Approved by

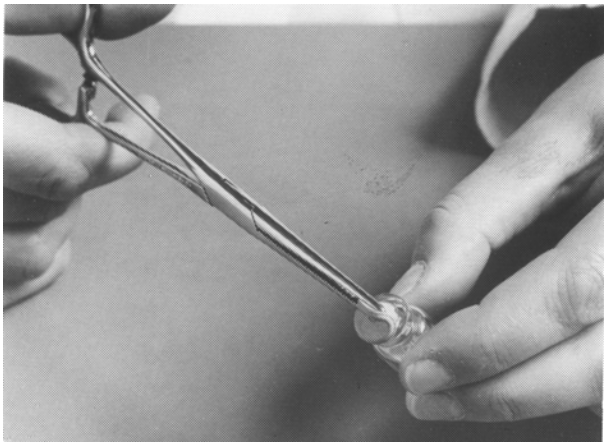
Jonas Ilbäck
Jonas Ilbäck
PT/RM Food Coordinator

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



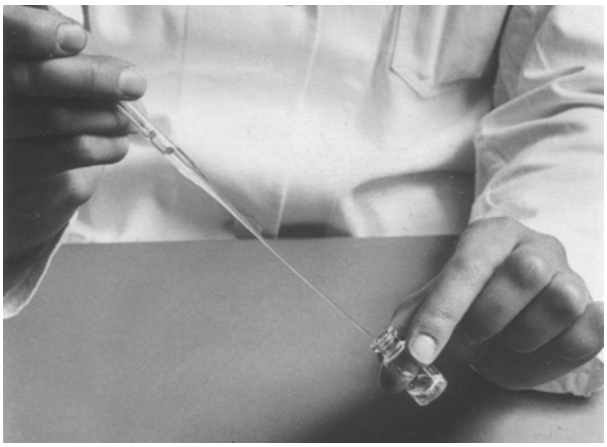
1. Twist the flap on the aluminium cap in the direction of the arrow.

2. Remove the aluminium cap.



3. Remove the rubber plug.

4. Carefully burn the opening of the vial over a gas flame.

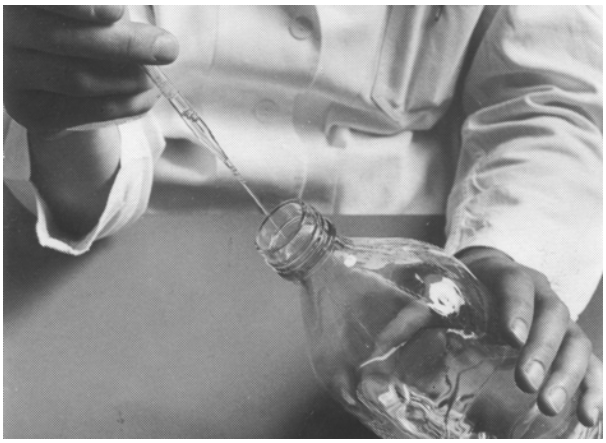


5. Add 1 ml diluent with a sterile pipette.

6. Let the content dissolve (1-5 minutes).

7. Using a sterile Pasteur 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 Pasteur pipette.



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

10. Repeat steps 8 and 9 two more times with the same Pasteur pipette.

11. After thorough intermittent mixing, the 104 ml sample is ready for analysis.

12. Perform the analyses immediately.*

** 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.*