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Shelf-Life Submission Guideline

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A. Introduction

The determination of shelf-life is the length of time a product may be stored without becoming unsuitable for human consumption. The calculation of a realistic shelf-life and date mark for a food product helps to ensure the safety and quality of food sold.

The decision of a shelf-life date needs to be made by the manufacturer or supplier of the food product. Everyone who packages and sells food that is required to be date-marked is legally responsible for calculating how long their product can reasonably be expected to keep, without any appreciable change in quality. The food label is required to detail the shelf-life as well as the storage instructions to meet that shelf-life.

In most cases this is the responsibility of the food manufacturer, but it can also be re-packers, secondary processors, food retailers, distributors and supermarkets.

The objective of shelf-life testing is to determine how rapidly the following changes occur in a food product during distribution and storage:

- Microbiological
- Chemical
- Physical

B. Submitting Shelf-life Samples for Microbiological Testing

1. Submit a minimum of 100g of sealed end product for each test date for routine testing.

   Where pathogen tests are requested ensure additional volume is submitted (25g additional per pathogen).

2. Complete a Shelf-life Request Form according to your shelf-life plan.

   Record the test date and analyses requested for each test date.

   Where assistance is needed with a shelf-life plan please liaise with the laboratory.

3. Record any other details required for your final report e.g. product description, batch code, production date and any other sample identifiaction (ID) as applicable on the Request Form.

Note: Each sample needs to be on a separate line as each sample is issued a unique laboratory sample ID number for reporting.

4. Provide the product specification of your product (acceptable ranges for each test type).
5. If additional dilution ranges are required to cover a wider range, please liase with lab before tesing as this will be at an additional cost.
6. Transport refrigerated samples in a cooler box with frozen ice-bricks to maintain the cold-chain.
7. Submit request forms together with the transported samples, and electronically if possible to:

   Cape Town: admin@microchem.co.za

   Johannesburg: Reception.jhb@microchem.co.za; admin.JHB@microchem.co.za

C. Requirements to Generate a Shelf-life Plan

To assist with a recommendation of a shelf-Lige Plan, the following are requried:

1. Product type and type of process (e.g. ambient/refrigerated, fully cooked/raw, contains cheese/raw produce/fresh herbs, pasteurized, pickled, etc.)
2. Estimated shelf-life of product (e.g. 2 days, 2 weeks, 2 months or 2 years)
3. Microbiological specification of product (manufacturer's test types and acceptance criteria)

D. Dilution Range Categories

1. Microchem performs tests to produce results within the products' acceptable ranges,
   e.g. if a product has an upper acceptable limit of < 100 CFUs/g for coliforms, a 1:10 dilution range (category 1) will be used to evaluate products as this produces results in the range of 10 – 1 500 CFUs/g.

Table 1: Dilution Range Categories

Category	Dilution	*Reportable Range (CFUs/g)	Reporting of 'No Growth' at the Dilution Plated (CFUs/g)	Reporting of **TNTC at the Dilution Plated (CFUs/g)
#0	1	0-150	<1	>150
1	1: 10	10 - 1 500	No Growth (<10)	>1 500
2	1: 100	100 - 15 000	<100	>1 500
3	1: 1 000	1 000 - 150 000	<1 000	>15 000
4	1: 10 000	10 000 - 1 500 000	<10 000	>150 000
5	1: 100 000	100 000 - 15 000 000	<100 000	>1 500 000
6	1: 1 000 0000	1 000 000 - 150 000 000	<1 000 000	>15 000 000

** Upper Reportable Results are specific to analysis type according to the recommended countable range of the product which is either 150 CFUs/plate or 300 CFUs/plate multiplied by the dilution prepared.*

*** TNTC (Too Numerous to Count)*

#(liquid samples only)

E. Evaluation of Certificate of Analysis

1. Evaluate the product using all information provided by the test report.
2. Compare your results received to your product guideline of acceptable limits. If results are below the acceptable limit, your product is within specification. If results are above acceptable limits, your product is out of specification.
3. Establish your shelf-life according to the results reported and tested. All results must be within acceptaple limits for the stated shelf-life period.
4. Evaluation of results to determine the shelf-life date needs to be made by the client. Microchem cannot make this decision on behalf of the client, or state it on the test report.

F. Example of Completed Shelf-life Request Form

Microbiology Request Form: Shelf-Life ☒ Cape Town ☐ Johannesburg

Customer Information PLEASE COMPLETE ALL FIELDS

Company Name	MICROCHEM LAB SERVICES
Company Address	DAIRY STREET, STIKLAND
Technical Contact Person	NAME SURNAME
Requested By	NAME SURNAME
Requestor Email	MICRO@MICROCHEM.CO.ZA
Telephone	021 465 6996
Accounts Contact Person	NAME SURNAME
Accounts Email	creditor@microchem.co.za
Date Requested	10/01/2021
Purchase Order Number	12345

**Required for 30-day account clients*

Special Instructions for Samples Submitted	Requested by:

Please Tick the Following Option:	☒ Collected ☐ Delivered	☒ Food and Water Lab Analysis ☐ Pharmaceutical Lab Analysis (Pharmaceutical Grade) ☐ Other, Please Specify _____
Client Date and Time Samples Taken		
Storage Temperature (Client)		
MICROCHEM USE ONLY:		
MICROCHEM REFERENCE NUMBER		RECEIPT TEMPERATURE

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INCLUDE ALL INFORMATION REQUIRED ON FINAL REPORT BELOW				Select: ☒ REFRIGERATED/ ☐ AMBIENT/ ☐ ACCELERATED															
Product Name	Roast Chicken Pie			COUNT										DETECTION					
Batch code	Trial 1																		
Production Date	2021/01/09	Best Before																	
Sell By Date		Use By Date																	
Comment:																			
TEST DATE (YYYY/MM/DD)	CLIENT SAMPLE ID	For Microchem Use Only: SAMPLE ID NUMBER	For Microchem Use Only: ANALYST VERIFICATION	Bacillus cereus	Clostridium perfringens	Coliforms	E. coli	Enterobacteriaceae	Listeria monocytogenes COUNT	Lactic Acid Bacteria	Staph. aureus	Total Plate Count	Yeast and Moulds	E. coli O157	Listeria monocytogenes	Listeria Species + L. mono	Salmonella spp.	Shiga-toxin E. coil (STEC/VTEC)	OTHER TESTS (Use ABBR)
2021/01/11							x	x							x		x	x	Pseudo
2021/01/12							x	x											Pseudo
2021/01/13							x	x											Pseudo

CLIENT SPECIFICATION – Please complete for non-pathogen analyses

Test Type/s	Acceptable Limit
TVC	<100 000
Pseudo spp.	<10 000
E. coli, S. aureus	<10