EAST AFRICA COMMUNITY PROFICIENCY TESTING WORKING GROUP

PROTOCOL FOR PROFICIENCY TESTING SCHEMES

Version 1, May 2026

Part 1 – Common Principles

PREFACE

This protocol specifies the common principles and general requirements for the design, implementation and evaluation of proficiency testing (PT) programmes under the EAC PT Scheme, including the evaluation of participant performance. Part 1 sets out requirements common to all PT schemes and shall be used together with the relevant scheme-specific parts and operational procedures.

VERSION HISTORY

This Protocol supersedes previously published EAC PT documents, namely Part 1: Introductory General Information and Part 2: PT Matrices.

The substantive changes are as follows:

a) Consolidation of the two documents into a single protocol
b) Alignment with ISO/IEC 17043:2023 and applicable accreditation body requirements
c) Inclusion of newly approved scopes

CONTENTS

1. INTRODUCTION

The EAC Proficiency Testing (PT) Scheme is a regional programme coordinated through the National Standards Bodies (NSBs) of the East African Community to strengthen conformity assessment, laboratory competence and confidence in test results. It promotes harmonised testing practices and supports mutual recognition of results within the region.

The Scheme is implemented jointly by the following NSBs:

a) Kenya Bureau of Standards (KEBS)
b) Uganda National Bureau of Standards (UNBS)
c) Tanzania Bureau of Standards (TBS)
d) Rwanda Standards Board (RSB)
e) Bureau Burundais de Normalisation et Contrôle de la Qualité (BBN)

Participation provides laboratories with an independent means of assessing analytical performance, identifying improvement needs and demonstrating technical competence to customers, regulators, accreditation bodies and other interested parties.

The Scheme is operated in accordance with the following standards:

a) ISO/IEC 17043:2023 – Conformity assessment — General requirements for proficiency testing providers
b) ISO 13528:2022 – Statistical methods for use in proficiency testing by interlaboratory comparison

The Scheme is generally conducted in annual rounds covering the matrices included in the approved programme. Participation may be open to laboratories within and outside the EAC region, subject to the applicable scheme requirements, and registered testing shall be performed by the participating laboratory without outsourcing the PT work.

Scheme design, implementation and reporting are structured to support technical validity, impartiality, confidentiality and fitness for purpose.

1.1. What is PT?

ISO/IEC 17043:2023 defines proficiency testing as the evaluation of participant performance against pre-established criteria by interlaboratory comparison.

PT is an important tool for laboratories that need independent evidence of competence, particularly where results support quality, safety or regulatory decisions. Where suitable schemes are available, participation may also support ISO/IEC 17025 requirements.

By analyzing the PT item under routine conditions and comparing results with those of peer laboratories, participants obtain an external check on the reliability of their results.

1.2. Accreditation and PT

Accreditation and PT are related but distinct. Accreditation is a formal third-party assessment of a laboratory's management system and technical competence against an applicable standard.

For testing laboratories, the relevant standard is ISO/IEC 17025:2017. Participation in PT complements accreditation by providing external evidence of performance, but participation alone does not demonstrate full conformity with ISO/IEC 17025.

Participation in a PT scheme does not constitute accreditation, including where the PT provider is accredited.

1.3. Selection of PT by Users

Selection of a PT scheme should take account of the laboratory's scope, analyte-matrix combination, required level of participation and any applicable requirements of accreditation bodies, customers or regulators. Participants are responsible for confirming that a selected scheme is fit for purpose and should consult the Regional PT Coordinator where necessary.

2 ORGANIZATION OF SCHEMES

2.1 Administration

EAC PT Scheme is administered in accordance with internationally accepted principles for proficiency testing and the applicable requirements of ISO/IEC 17043:2023 and ISO 13528:2022.

Overall oversight of the Scheme rests with the EAC PT Regional Coordinator and the Deputy Coordinator, who reviews planned PT activities, considers technical and operational matters arising from current rounds, and provides direction on scheme development and harmonised implementation across participating National Standards Bodies.

The day-to-day administration of each PT round is done by the respective NSB designated PT Coordinator(s), who is responsible for operational planning, communication with participants, implementation of scheme activities and issue resolution within the defined scope of the round.

Technical advice may be obtained from competent internal or external experts, selected based on relevant expertise.

2.2 Confidentiality

Information relating to participants, including performance results, are treated as confidential and are only disclosed with prior consent of the participant, except where disclosure is required by applicable law or accreditation obligations. Reports present participant results in unique laboratory codes that do not identify individual laboratories.

Arrangements are implemented to prevent conflicts of interest and to preserve confidentiality, where internal laboratories, partner institutions or external experts are involved in scheme activities. Access to participant information is limited to personnel with an authorised need to know.

Scheme reports and related materials remain the property of the EAC PT Scheme or the issuing body, as applicable. Any reuse of report content in external publications should be subject to prior permission.

2.3 Typical Timetable

The EAC PT Scheme generally operates through scheduled annual rounds, with dates for announcement, registration, dispatch, result submission, reporting and, where applicable, evaluation activities communicated in advance to support participant planning.

1. Preparation and verification of test items, including homogeneity assessment where applicable
2. Dispatch of test items and issue of participant instructions
3. Analysis by participants and submission of results by the stated deadline
4. Statistical evaluation of results
5. Issue of the final report to participants

Participants are informed promptly of any material delay affecting dispatch, result submission or reporting.

Post-evaluation review or training activities may be conducted to support interpretation of results and continual improvement.

2.4 Management System

The EAC PT Scheme is operated under a documented management system that supports consistent delivery, impartiality, competence, corrective action and continual improvement. The status and scope of accredited PT activities are identified in the relevant scheme documentation, where accreditation applies.

2.5 Subcontractors

Specific activities may be subcontracted to competent organisations where necessary. EAC PT Scheme remains responsible for the quality and integrity of the subcontracted work, and subcontractors are selected, approved and monitored in accordance with pre-defined criteria. Planning and design of proficiency testing activities, the statistical evaluation of participants' results, authorization and release of reports are key activities that remain under the direct responsibility of the proficiency testing provider and are not subject to subcontracting.

2.6 Agents

The role of local agents, where appointed, may include participant support, local coordination and facilitation of administrative processes. Agents are not given access to confidential participant performance information unless expressly authorised.

2.7 Bespoke schemes

The Scheme may develop bespoke PT rounds subject to technical feasibility, participant demand and resource availability, where scheduled rounds do not meet a defined need. The applicable requirements, scope and accreditation status of such rounds are communicated in advance.

3. PARTICIPATION IN SCHEMES

Participation requirements, eligibility, frequency and fees are specified for each scheme or round. It is the responsibility of the participant to confirm that a selected PT round is appropriate to its scope and intended use.

3.1 Enrolment and Fees

Information on available PT rounds, scope, test items, enrolment arrangements, payment details, and applicable fees are made available to prospective participants.

Registration shall be completed in the manner specified for the relevant round, and participation is confirmed only after payment of the applicable enrolment fee.

Round-specific information, including the matrices offered, test parameters, key dates, fees, registration arrangements, and coordinator contact details, are issued separately for each PT round and shall be read together with this protocol.

3.2 Dispatch and receipt of PT items

PT items are dispatched with instructions covering receipt, storage, handling, analysis and result submission. Distribution may be managed directly by the provider or through a qualified courier service provider to support secure and timely delivery. Participants are responsible for following the instructions provided and for notifying the PT Coordinators promptly if materials are not received or arrive in unsuitable condition.

3.2.1 PT item preparation and homogeneity testing

PT items may contain naturally occurring, incurred or fortified analytes, as appropriate to the scheme design. Before distribution, the PT Coordinators verify that the test items are sufficiently homogeneous for the intended purpose, using suitable statistical procedures where applicable.

3.2.2 Stability of PT item

Proficiency testing (PT) items are tested by laboratories that comply with ISO/IEC 17025, and the resulting data are statistically evaluated prior to shipment to verify the stability of the PT items. This verification is conducted to confirm that the PT items remain sufficiently stable throughout the anticipated periods of storage, transportation, and participant analysis. Where stability limitations are identified, appropriate controls, including shortened timeframes and specific handling or storage instructions, are established and

communicated to participants to ensure the integrity and validity of the proficiency testing scheme.

3.2.3 Stability under transportation conditions

PT items are transported under conditions intended to preserve their integrity. Participants shall follow the storage instructions provided on receipt, irrespective of the transport conditions observed during delivery.

3.3 Analysis of PT items

To obtain meaningful evidence of routine performance, participants should analyse PT items in-house using their normal procedures, usual staff, equipment and conditions, without special treatment. Any scheme-specific restrictions or method-related instructions are stated in the round documentation.

3.4 Submission of results and methods

Participants shall submit results in the specified format, units and time frame. Method information may also be requested where needed for interpretation, method grouping or assigned value determination. Acceptance of late results shall be at the discretion of the round coordinator.

3.4.1 Collusion and falsification of results

Collusion, outsourcing of registered PT work, or falsification of results undermines the purpose of proficiency testing and is not permitted. Participants are responsible for maintaining the integrity of submitted results, and the PT Coordinator may take appropriate action where misconduct is identified, including exclusion of suspected falsified results from statistical evaluation.

3.5 Report distribution

Reports are issued after completion of the required technical and quality checks and made available to authorised participant contacts. Report issue timelines may vary depending on the complexity of the evaluation.

3.6 Follow-up services

Participants may request clarification or technical guidance on their results and performance assessments. Support may be provided directly or, where appropriate, through referral to suitable technical expertise, subject to confidentiality requirements.

3.6.1 Quality control samples

Surplus or specially prepared materials may be offered for quality control, training or troubleshooting purposes. Any associated information sheet accompanied with the quality control material will define the applicable assigned values or reference information and any stated limitations of use.

3.6.2 Reference materials

Reference materials may be provided for calibration, method verification or quality assurance purposes. Their assigned values and associated uncertainty are stated in the accompanying documentation.

3.6.3 Use of website facilities in secure pages

Secure online facilities may be used for enrolment, result submission, report access and review of historic performance data, where such services are available.

4. PERFORMANCE ASSESSMENT

Participants' performance are evaluated using appropriate statistical methods consistent with ISO 13528 and the design of the relevant PT round. The assessment takes into account the nature of the measurand, the assigned value and the performance criterion adopted for the scheme.

4.1 Scoring

Performance may be expressed using standardised scores such as z-scores, z'-scores, En scores or other appropriate statistics.

4.1.1 Why score?

Standardised scores provide a simple way to compare participant results with the assigned value and with the performance criterion for the scheme. They also support interpretation of trends over time.

4.1.2 Types of scores

Different performance score types may be used depending on the statistical design of the proficiency testing (PT) round and the nature of the participants' reported results. The performance score selected for each scheme and round is technically justified, and the basis for its use is explained in the proficiency testing report where necessary.

4.1.2.1 z-scores

A z-score expresses the difference between a participant result and the assigned value relative to the standard deviation for proficiency.

$$z = \frac{x - \mu}{\sigma_{pt}}$$

Where:

- x= observed value
- μ= mean
- σ= standard deviation for proficiency assessment

4.1.2.2 Other types of scores

Other performance statistics may be used for specific proficiency testing schemes where justified by the nature of the reported results or the evaluation model applied. Their meaning and interpretation are clearly stated in the performance evaluation report.

4.1.2.3 Comparing scores across different PTs rounds

Comparability of scores between different proficiency testing (PT) rounds is achieved only when the assigned values, performance criteria, and

evaluation models are sufficiently consistent. Where applicable, the PT coordinator may include an evaluation of inter-round comparability in the performance evaluation report.

4.1.2.4 Qualitative assessment

Qualitative results may be assessed against the expected property value, formulation or relevant participant consensus, as appropriate to the scheme design.

4.1.3 Assigned value

The assigned value may be derived from a robust mean, robust median, arithmetic mean, formulation, reference material values or other technically justified sources, as appropriate to the PT design. The method used and any relevant uncertainty considerations are stated in the report.

4.1.4 Standard deviation for proficiency assessment, SDPA

The standard deviation for proficiency assessment (SDPA) is established in accordance with the fitness-for-purpose criterion applicable to the specific proficiency testing (PT) round and represents the acceptable degree of dispersion of participant results for the intended measurement application. Depending on the nature of the measurand and the objectives of the scheme, the SDPA may be derived from recognised statistical models, method performance characteristics, historical PT data, interlaboratory studies, regulatory requirements, specification limits, or expert judgement, as appropriate. The approach or technique adopted for the determination of the SDPA is documented and stated in the participant performance report to ensure transparency, consistency, and the appropriate interpretation of participant performance scores.

4.1.5 Policy on low number of participants

Where the number of valid participant results is low, additional caution is exercised in the derivation of the assigned value and in the assessment of participant performance. Any limitations associated with a low number of participant results, including their potential impact on the reliability and interpretation of performance assessments, are clearly stated in the participant performance report.

4.1.6 Policy on very low concentrations

For analytes present at very low concentrations, performance assessment may be limited by detection capability, uncertainty and the availability of supporting evidence. The PT Coordinator will apply technically justified criteria and may restrict formal scoring where necessary.

4.1.7 Provision of assessments outside official reports

PT Coordinator may issue limited assessments outside the standard reporting cycle. Any such assessment will clearly state its basis, scope and any restrictions on interpretation.

4.2 Interpreting performance assessments

Performance assessments of participants are interpreted in the context of the specific PT round, PT item, the method used and the participant's broader quality system.

4.2.1 Interpreting qualitative performance assessments

Qualitative results are interpreted against the expected outcome defined for the round and any applicable scheme rules.

4.2.2 Interpreting z-Scores

As a general guide,

a) $|z| \leq 2$ Satisfactory. Indicates performance consistent with the scheme criterion,

b) $2 < |z| < 3$ Questionable. Signals a result that should be reviewed, and

c) $|z| \geq 3$ Non satisfactory.lindicates a result requiring investigation.

These limits should be applied as action thresholds rather than absolute judgements.

4.3 Complaints and appeals

Complaints and appeals are handled through a documented process that provides for acknowledgement, investigation, impartial review and communication of the outcome. Where an error is confirmed, PT Coordinators implement correction and, where necessary, corrective action.

Appendix A: EAC PT Scope

PART A.1: CHEMISTRY PROGRAMME – FOOD AND AGRICULTURAL PRODUCTS

No.	Parameter	Typical concentration	Units
Wheat & maize flour (KEBS)			
1)	Moisture	6-16	%m/m
2)	Crude protein	6-12	%m/m
3)	Crude Fat	1-4	%m/m
4)	Total Ash	0.1-3	%m/m
5)	Crude fiber	0.1-2	%m/m
6)	Fat acidity	2-1200	mg KOH per 100 g
7)	Gluten	1-50	%m/m
8)	Vitamin A	0.1-10	mg/kg
9)	Copper	0.1-10	mg/kg
10)	Iron	10-85	mg/kg
11)	Zinc	10-85	mg/kg
12)	Total Aflatoxin	2–20	µg/kg
13)	Fumonisin	100–4000	µg/kg
UHT milk – Whole & skimmed (KEBS)			
14)	Milk fat	3.0-4.5	%m/m
15)	Density	1.020-1.037	g/ml
16)	Protein	1.0-5.5	%m/m
17)	Total solids	2.0-20	%m/m
18)	Titratable acidity	0.01-0.30	%m/m
19)	Freezing point depression	-0.5 to -1.02	°C
20)	pH	5.9-8.0	
21)	pH on 5 days incubation	0.01-1.25	
22)	Aflatoxin M1	0.01-10	ppb
23)	Calcium	20-800	mg/kg
24)	Lactose	1.0-15.0	%m/m
Milk powder (KEBS)			

No.	Parameter	Typical concentration	Units
25)	Milk fat	0.1-35	%m/m
26)	Protein	10-40	%m/m
27)	Total solids	2.0-20	%m/m
28)	Titratable acidity	0.01-0.30	%m/m
29)	Aflatoxin M1	0.01-10	ppb
Roasted nuts (KEBS)			
30)	Moisture content	0.1-12	%m/m
31)	Free fatty acid	0.1-3	%
32)	Total aflatoxin	0.1-100	ppb
33)	Aflatoxin B1	0.1-50	ppb
Raw Macadamia nuts (KEBS)			
34)	Moisture content	0.1-10	%m/m
35)	Free fatty acid	0.1-3	%
Black tea - BP1, BF1 (KEBS)			
36)	Moisture Content	1-7	%m/m
37)	Water extracts	20-55	%m/m
38)	Total ash	2-10	%m/m
39)	Water soluble ash	30-80	% of total ash
40)	Alkalinity of water-soluble ash (as KOH)	0.2-5	%m/m
41)	Acid-insoluble ash	0.01-3	%m/m
42)	Crude fibre	2-15	%m/m
43)	Total polyphenols	5-25	%m/m
44)	Iron	20-280	mg/kg
45)	Copper	0.1-30	mg/kg
46)	Zinc	0.1-35	mg/kg
47)	Arsenic	0.01-5	mg/kg
48)	Cadmium	0.01-5	mg/kg
49)	Lead	0.01-5	mg/kg
Animal feeds – Poultry & Dairy (KEBS)			
50)	Moisture	5-16	%m/m

No.	Parameter	Typical concentration	Units
51)	Crude protein	3-30	%m/m
52)	Crude Fat	1-10	%m/m
53)	Total Ash	1-15	%m/m
54)	Crude fibre	2-15	%m/m
55)	Acid insoluble ash	0.2-10	%m/m
56)	Calcium	1-10	%m/m
57)	Phosphorus	0.1-5	%m/m
58)	Zinc	10-150	mg/kg
59)	Total aflatoxin	0.1-100	ppb
60)	Aflatoxin B1	0.1-50	ppb
Edible vegetable oil (UNBS)			
61)	Nickel	0.05–5	mg/kg
62)	Copper	0.01–2	mg/kg
63)	Moisture & Volatile Matter	0.01–1.0	% m/m
64)	Refractive Index	1.460–1.480	RI at 20°C/40°C
65)	Iodine Value	50–150	g I_2/100 g
66)	Peroxide Value	0.5–20	meq O_2/kg
67)	Relative Density	0.900–0.930	
68)	Acid Value	0.05–5	mg KOH/g
69)	Vitamin A	2–40	mg/kg
Alcoholic Beverage - Gin (UNBS)			
70)	Alcohol Content	35–45	% v/v at 20°C
71)	Volatile Acids	5–200	mg/L
72)	Esters as Ethyl Acetate	10–500	mg/L
73)	Methanol	5–1000	mg/L
Edible salt (TBS)			
74)	Calcium	0.01–1.0	% m/m
75)	Magnesium	0.01–1.0	% m/m
76)	Moisture at 105°C	0.05–2.0	% m/m
77)	Sulphate	0.05–2.0	% m/m

No.	Parameter	Typical concentration	Units
78)	Matter Insoluble in Water	0.01–1.0	% m/m
79)	Chloride as NaCl	95–99.8	% m/m
80)	Iodate as Iodine	10–80	mg/kg
Fertilizers (TBS)			
81)	Moisture Content	0.5–10	% m/m
82)	Total Nitrogen	1–46	% m/m
83)	Ammoniacal Nitrogen	1–25	% m/m
84)	Nitrate Nitrogen	0.5–20	% m/m
85)	Total Phosphorus	1–25	% P_2O_5 or % P
86)	Potassium as K_2O	1–60	% K_2O
Honey (TBS)			
87)	Moisture	14–22	% m/m
88)	Hydroxymethylfurfural	1–40	mg/kg
89)	Ash Content	0.1–1.0	% m/m
90)	Acidity	1–50	meq/kg
91)	Water Insoluble Matter	0.1–1.0	% m/m
92)	Relative Density	1.35–1.45	Dimensionless
93)	Reducing sugars	60–90	% m/m
94)	Sucrose	1.0–10	% m/m
95)	Fructose/Glucose Ratio	1-2	Ratio
96)	Lead	0.1–2.0	mg/kg
97)	Zinc	0.1–5.0	mg/kg
Fruit Juice (TBS)			
98)	pH	3.0–5.0	pH units
99)	Brix/TSS	8.5–12.0	°Brix
100)	Alcohol Content	0.0–0.5	% v/v
101)	Acidity	0.1–0.7	% citric acid or g/L
102)	Ascorbic Acid/Vitamin C	5–600	%mg/kg
103)	Copper	1–5	mg/L
104)	Arsenic	0.1–0.2	mg/L

No.	Parameter	Typical concentration	Units
105)	Lead	0.1–0.3	mg/L
Energy drink (TBS)			
106)	pH	2.0–4.0	pH units
107)	Brix/TSS	2–19	°Brix
108)	Caffeine	200–320	mg/L
Sugar (RSB)			
109)	Polarization	98–100	°Z or °S
110)	Conductivity Ash	0.01–0.10	% m/m
111)	Moisture Content	0.01–0.20	% m/m
112)	Colour	20–1000	ICUMSA units
113)	Sulphur Dioxide	1–70	mg/kg
114)	Lead	0.01–1.0	mg/kg
115)	Iron	0.1–10	mg/kg
116)	Zinc	0.1–10	mg/kg
117)	Cadmium	0.005–0.2	mg/kg
Instant and Green Coffee (UNBS)			
118)	Moisture Content	1–6	% m/m
119)	Total Ash	3–12	% m/m
120)	Caffeine Content	1–5	% m/m
121)	Lead	0.01–2	mg/kg
122)	Cadmium	0.005–1	mg/kg
123)	Arsenic	0.005–1	mg/kg
Ground and roasted coffee (BBN)			
124)	Moisture content,	2-10	%m/m
125)	Total ash	1-8	%m/m
126)	Water-soluble ash,	15-40	%m/m
127)	Acid insoluble ash,	0.1-2	%m/m
128)	The alkalinity of water-soluble ash,	1-10	%m/m

No.	Parameter	Typical concentration	Units
129)	Water extracts, Caffeine	0.1-2	%m/m
Maize Grains (TBS)			
130)	Moisture content	8–14	%m/m
131)	Other grains	0.5–3.0	%m/m
132)	Inorganic matters	0.1–0.75	%m/m
133)	Broken kernel	0.1–2.5	%m/m
134)	Pest damaged kernels	0.1–5.0	%m/m
135)	Discoloured grains	0.1–2.5	%m/m
136)	Toxic seeds	0.1–2.0	%m/m
137)	Total defectives	1.0–14.0	%m/m
138)	Aflatoxin B1	1.0–10.0	µg/kg
139)	Total aflatoxin	5.0–25.0	µg/kg
Rice Grains (TBS)			
140)	Moisture content	8.0–14.0	%m/m
141)	Red and red streaked kernels	1.0–12.0	%m/m
142)	Paddy/ husked rice	0.1–3.0	%m/m
143)	Broken kernels	0.1–5.0	%m/m
144)	Inorganic matters	0.1–3.0	%m/m
145)	Aflatoxin B1	1-10	µg/kg
146)	Total aflatoxin	5-25	µg/kg
Peanut Butter (TBS)			
147)	Moisture content	1.0–3.0	%m/m
148)	Fat content	35.0–60.0	%m/m
149)	Salt content as NaCl	0.1–3.0	%m/m
150)	Acidity of extracted fat as oleic acid	0.1–4.0	%m/m
151)	Total ash	0.1–5.0	%m/m
	Aflatoxin B1	1–10	µg/kg
	Total aflatoxin	5–25	µg/kg
Spices (TBS)			

No.	Parameter	Typical concentration	Units
	Moisture content	8.0–14.0	%m/m
	Nonvolatile ether extract	0.1– 6.5	%m/m
	Acid insoluble ash	0.1 – 3.0	%m/m
	Total ash	1.0 – 7.0	%m/m
	Lead	0.1– 5.0	mg/kg
	Arsenic	0.1– 0.5	mg/kg
	Cadmium	0.1– 5.0	mg/kg
	Iron	0.1– 5.0	mg/kg
	Copper	0.1–5.0	mg/kg
	Zinc	0.1– 5.0	mg/kg

PART A.2: CHEMISTRY PROGRAMME – NON-FOOD PRODUCTS

No.	Parameter	Typical concentration	Units
Cosmetics (RSB)			
1)	Hydroquinone	0.01–5	% m/m
2)	Thermal Stability	Stable/Unstable	Qualitative
3)	pH	3–9	pH units
4)	Lead	0.01–20	mg/kg
5)	Arsenic	0.01–10	mg/kg
6)	Mercury	0.01–10	mg/kg
Paint (KEBS)			
7)	Non-Volatile Matter	20–80	% m/m
8)	pH	7–10	pH units
9)	Viscosity	50–5000	cP or KU
10)	Specific gravity	1.0-1.8	-
11)	Drying time	1min - 24hrs	Min/Hours
12)	Lead as Pb	10–10,000	mg/kg
13)	Titanium as Ti	1–40	mg/kg
14)	Chromium as Cr	1-50	mg/kg
Soil (KEBS)			

No.	Parameter	Typical concentration	Units
15)	pH	4.5 – 8.5	
16)	Electrical conductivity	0.1 – 8.0	dS/cm
17)	Zinc	0.2 – 15	mg/Kg
18)	Iron	2 – 100	mg/Kg
19)	Manganese	1 – 80	mg/Kg
20)	Copper	0.1 – 10	mg/Kg
21)	Calcium	200 – 4000	mg/Kg
22)	Magnesium	50 – 1000	mg/Kg
23)	Potassium	40 – 400	mg/Kg
24)	Sulphur	5 – 60	mg/Kg
25)	Sodium	10 – 400	mg/Kg
26)	Boron	0.1 – 5.0	mg/Kg
27)	Molybdenum	0.01 – 1.0	mg/Kg
Lubricant (TBS)			
28)	Viscosity Index	All	
29)	Kinematic viscosity at 40 degrees	All	sqmm/s
30)	Pour point	All	degree celcius
31)	Sulphated ash	0-5	%m/m
32)	Total oil content	max 100	%m/m
33)	Total base number	0-15	Mg KOH/g
34)	Kinematic viscosity at 100 degree	All	sqmm/s
Laundry soap (RSB)			
35)	Free Caustic Alkali as NaOH	0.01–0.5	% m/m
36)	Total Free Alkali as NaOH	0.1–2.0	% m/m
37)	Moisture & Volatile Matter at 105°C	5–30	% m/m
38)	Ethanol Insoluble Matter	1–20	% m/m
39)	Matter Insoluble in Water	0.1–5	% m/m
40)	Chloride as NaCl	0.5–10	% m/m

PART B: MICROBIOLOGY PROGRAMME

No.	Parameter	Typical concentration	Units
Meat and fish (KEBS)			
41)	Total coliforms	cfu/g	0 to 10,000
42)	*E.coli* enumeration	cfu/g	0 to 10,000
43)	Total aerobic mesophilic count	cfu/g	0 to 100,000
44)	*Coagulase positive staphylococci*	cfu/g	0 to 10,000
45)	*Listeria species*	/25g	0 to 1,000
46)	*Salmonella species*	/25g	0 to 1,000
Black tea (KEBS)			
47)	Total viable count	cfu/g	0 to 100,000
48)	*Coliforms*	cfu/g	0 to 10,000
49)	*Escherichia coli*	cfu/g	0 to 10,000
50)	*Staphylococcus aureus*	cfu/g	0 to 10,000
51)	*Yeast*	cfu/g	0 to 10,000
52)	*Moulds*	cfu/g	0 to 10,000
53)	*Yeasts and Moulds*	cfu/g	0 to 10,000
54)	*Salmonella*	/25g	0 to 1,000
Dairy (KEBS)			
55)	Total coliforms	cfu/g	0 to 10,000
56)	*E. coli* enumeration	cfu/g	0 to 10,000
57)	Total aerobic mesophilic count	cfu/g	0 to 100,000
58)	*Coagulase positive staphylococci*	cfu/g	0 to 10,000
59)	*Listeria species*	/25g	0 to 1,000
60)	*Salmonella species*	/25g	0 to 1,000
Cosmetics (RSB)			
61)	*E.coli detection*	/10g	0-1,000
62)	*P.areuginosa*	/10g	0-1,000
63)	*Coagulase positive staphylococci*	/10g	0-1,000

No.	Parameter	Typical concentration	Units
64)	*Candida albicans*	/10g	0–1,000
Fruit Juice (UNBS)			
65)	Total Plate Count	cfu/g	0 to 1000
66)	Escherichia coli	cfu/g	0 to 100
67)	Yeasts and Moulds	cfu/g	0 to 100
68)	Total Plate Count	cfu/g	0 to 1000
69)	Escherichia coli	cfu/g	0 to 100

PART C: MATERIALS/ENGINEERING PROGRAMME

No.	Parameter	Typical concentration	Units
Solar panels (TBS)			
1)	Maximum Power Output	20–700	W
Electrical cables			
2)	Conductor Resistance	0.1–50	Ω/km
3)	Insulation Thickness	0.5–10	mm
4)	Insulation Resistance	$1–10^6$	MΩ·km
Bitumen (TBS)			
5)	Viscosity		
6)	Penetration	2-50	100 g 5 s / 250C), 0.1 mm
7)	Softening point	10-200	oC
8)	Flash point	50-300	0C (COC)
Electric lamps (UNBS)			
9)	Conductor Resistance	0.1–50	Ω/km
10)	Insulation Thickness	0.5–10	mm
11)	Insulation Resistance	$1–10^6$	MΩ·km
Cement (UNBS)			
12)	Compressive strength at 2-Days		Mpa
13)	Compressive strength at 7-Days		Mpa
14)	Compressive strength at 28-Days,		Mpa
15)	Setting times		minutes
16)	Soundness		mm
Roofing sheets (TBS)			

No.	Parameter	Typical concentration	Units
17)	Tensile Strength	250–700	N/mm²
18)	Top Colour + Primer Thickness	2–40	µm
19)	Bottom Colour Thickness	2–40	µm
20)	Base Metal Thickness	0.20–1.00	mm
21)	Top Substrate Coating	2–300	µm
22)	Bottom Substrate Coating	2–300	µm
Steel bars (TBS)			
23)	Mass per Unit Length	0.2–10	kg/m
24)	Nominal Cross-Sectional Area	20–800	mm²
25)	Upper Yield Stress, ReH	250–700	N/mm²
26)	Tensile Strength, Rm	350–900	N/mm²
27)	Elongation at Fracture, At	5–35	%
28)	Carbon	0.05–0.60	%
29)	Manganese	0.2–2.0	%
30)	Sulphur	0.005–0.10	%
31)	Phosphorus	0.005–0.10	%
Woven fabric (KEBS)			
32)	Breaking strength	50-2500	N
33)	Elongation- strip method	5-30	%
34)	Mass per unit area	50-300	g/m²
35)	Tearing strength- Elmendorf method N	5-50	N
36)	Tearing strength- Trouser method N	10-150	N
37)	Construction- Threads per unit length	10-60	/cm
38)	Fibre composition and proportion: Polyester/ Cellulose	50-90 (Poly) 10-50 (Cel)	%
39)	Dimensional changes induced by water immersion	-10 to +10	%
40)	Fabric width	80-160	cm
Foam mattress (KEBS)			
41)	Compression Set	1–30	%

No.	Parameter	Typical concentration	Units
42)	Tear Resistance	50–800	N/m or N
43)	Tensile Strength	50–500	kPa
44)	Ultimate Elongation	50–400	%
45)	Density	17-40	Kg/m3
Plastic pipe (TBS)			
46)	Thickness	2-10	mm
47)	Hydrostatic pressure test	All	Bars
48)	Longitudinal reversion	0-5	%
49)	Diameter	20-63	mm
Leather (KEBS)			
50)	Tensile strength	10-40	N/mm2
51)	Elongation at break	20-80	%
52)	Tear strength	20-100	N
56)	PH	3-5	-
57)	Thickness	0.7-2.0	mm
58)	Rub fastness	2-4	Grey scale

PART D: NEW MATRICES (Free)

No.	Parameter	Typical concentration	Units
Food chemistry-Pasta products (KEBS)			
1	Moisture content	5-18	%m/m
2	Total ash (on dry weight basis)	0.2-3	%m/m
3	Acid insoluble ash (on dry weight basis)	0.1-1.5	%m/m
4	Total protein (N x 5.7) on dry basis), % by mass, min.	1-12	%m/m

5	Cooking test: Total solids in gruel, % by mass, max.	5-12	%m/m
6	Fat acidity, mg NaOH/100 g, max. (or Acid value, mg NaOH/g, oil max. (fried noodle)	1-20	%m/m
Meat product (KEBS)			
7	Tetracyclines	0 to 100	ppb
8	Sulphonamides	0 to 100	ppb
Edible Dry Beans (TBS)			
9	Foreign matter, % m/m	0.1– 1.0	% m/m
10	Other edible grains, % m/m	0.1– 1.0	% m/m
11	Pest damaged grains, % m/m	0.1– 3.0	% m/m
12	Contrasting varieties, % m/m	0.1– 4.0	% m/m
13	Broken/split, % m/m	0.1– 3.0	% m/m
14	Shrivelled/diseased and discoloured, % m/m	0.1– 5.0	% m/m
15	Total defective grains, % m/m	3.5– 7.0	% m/m
16	Filth	0.1– 0.5	% m/m
17	Moisture content	7– 14	% m/m
Tobacco & Tobacco Products (Fine Cuts & Cigarettes)(TBS)			
18	Moisture content	10 –25	%m/m
19	Nicotine content	1–5	%m/m
20	Total ash	1–25	%m/m
21	Acid insoluble ash	0.1–3	%m/m

22	Cigarette overall length	60–98	mm
23	Cigarette Circumference	15–30	mm
24	Cigarettes (Tobacco density)	0.15–0.35	g/cm3
VRLA stationery batteries (KEBS)			
25	Rated capacity	7-20	Ah
Ceramic and porcelain tiles (TBS)			
26	Water absorption	0-20	%
27	Breaking strength	150-3000	N/mm2
28	Modulus Fracture	5-40	N/mm2
29	Thickness	6-15	mm
Galvanized steel wire (KEBS)			
30	Weight of zinc coating	50 - 200	g/m^2

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Additional information is available on the following websites:

1. EPTIS https://www.eptis.bam.de
2. BBN https://bbnburundi.org/
3. KEBS www.kebs.org/ www.kebs.go.ke
4. Rwanda https://www.rsb.gov.rw/
5. Tanzania https://www.tbs.go.tz/pages/proficiency-testing
6. Uganda https://www.unbs.go.ug