

EAC PROFICIENCY TESTING SCHEME ROUND 18, 2023

Part 2: PT Matrices available and their test parameters, and brief Notes on test methods

PART A: CHEMISTRY PT's

1. FLOUR (MAIZE FLOUR & WHEAT FLOUR)

S/N	Test property	Brief Notes on The Parameter of The Test
4	N : 1	Ti I () () () () () () () () () (
1	Moisture	The loss of weight resulting from oven drying of flour sample at 105°C /130°C to
2	Crudo protoin	Constant weight
2	Crude protein	The total amount of protein in flour sample as determined using Kjeldahl method of
_	Omida fat	nitrogen analysis
3	Crude fat	The total amount of fat in the flour sample was determined using the solvent extraction
		meth <mark>od</mark> after hydrolyzing the sam <mark>ple.</mark>
4	Crude fibre	The loss in weight upon incineration at 550°C of the oven-dried residue remaining after
		sequential digestion of flour sample with H ₂ SO ₄ and NaOH
5	Total ash	The inorganic residue remaining upon incineration of flour sample at 550°C - 600°C
6	Acidity of extracted	Quantity of acids, essentially non-esterified fatty acids, expressed in mg of KOH per
	fat	100g of dry matter
7	Gluten	The total content of gluten in the flour sample
8	Vitamin A	The total content of vitamin A in the flour sample
9	Copper	The total content of copper in a flour sample
10	Iron	The total content of iron in the flour sample
11	Zinc	The total content of zinc in the flour sample
12 Aflatoxin (maize flour) Amount of aflatoxin B1, B2, G1, G2, and Total aflatoxin in a ma		Amount of aflatoxin B1, B2, G1, G2, and Total aflatoxin in a maize flour sample
13	Fumonisin	Amount of fumonisin in sample
	JUMU	IYA YA AFRIKA MASHARIKI /

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2. ANIMAL FEED

S/N	Test property	Brief Notes on The Parameter of The Test
1	Moisture	The loss of weight resulting from oven drying of feed sample at 105°C /130°C to
	1 1 1 1 1 1 1	constant weight
2	Crude Protein	The total amount of protein in feed sample as determined using Kjeldahl
		method of nitrogen analysis
3	Crude Fat	The total amount of fat in the feed sample as determined using the solvent
		extraction method after hydrolyzing the sample.
4	Crude Fibre	The loss in weight upon incineration at 550°C of the oven-dried residue
		re <mark>maining afte</mark> r sequential digestion of feed sample with
	127	H ₂ SO ₄ and NaOH
5	Total Ash	The inorganic residue remaining upon incineration of feed sample at 550°C -
		600°C
6	Acid Insoluble	A measure of sandy matter in a feed
	Ash	
7	Calcium	The total content of calcium in the feed
8	Phosphorous	The total content of phosphorous in feed
9	Zinc	The total content of zinc in feed

Contact details of PT Animal Feed providing Institution

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3. UHT MILK

S/N	Test property	Brief Notes on The Parameter of The Test
1	Milk fat	The proportion of milk by weight made of butterfat
2	Density at 20°C	The ratio of density to the density of standard substance (water) at 4°C
3	Protein	The total amount of protein in milk sample as determined using Kjeldahl method of nitrogen analysis
4	Total solids	Non-water components of the milk
5	Titratable acidity	Total acidity of the milk
6	Freezing point depression	The value of freezing point depression of milk
7	pH variation on 5 days incubation	The difference in pH value before and after incubation of milk for 5 days at 55°C
8	Calcium	The total content of calcium in the milk sample
9	Lactose	The total content of lactose in the milk sample
10	pH	The pH value of the value of milk as determined by the use of a pH meter

Contact details of UHT MILK PT Providing Institution

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4. EDIBLE OIL

S/N	Test property	Brief Notes on The Parameter of The Test
1	Nickel content	The total content of nickel in the oil sample
2	Copper content	The total content of copper in the oil sample
3	Moisture &	The lost matter in the sample by weight after drying the sample to constant weight.
	volatiles content	
4	Refractive index	A number that describes how light propagates itself through the edible oil sample medium, measured with a refractometer. This value depends on temperature.
5	lodine value	Mass of halogen, expressed as iodine, absorbed by the test portion of edible vegetable oil. lodine value is expressed as grams per 100 g of oil.
6	Peroxide value	The total quantity of those substances in the edible vegetable oil sample, expressed in terms of active oxygen, that oxidize potassium iodide.

7	Density, relative	The density of the oil sample is expressed in multiples of the density of pure water at the	
		same temperature as that of the test sample.	
8	Acid value	The number of milligrams of potassium hydroxide required to neutralize the free fatty acids	
		present in 1 g of fat, Acid value is expressed in milligrams per gram of edible oil sample.	

Contact details of edible oil PT Providing Institution

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5. ALCOHOLIC BEVERAGE (GIN)

S/N	Tested property	Brief Notes on The Parameter of The Test
1	Alcohol content	Result expressed as %v/v, at 20°C of sample
2	Volatile acids as acetic acid	Result expressed as mg/Litre of absolute alcohol
3	Esters as eth <mark>yl</mark> acetate	Result expressed as mg/Litre of absolute alcohol
4	Aldehydes as acetaldehyde	Result expressed as mg/Litre of absolute alcohol
5	Methanol	Result expressed as mg/Litre of sample

Contact details of Alcoholic beverage (Gin) PT Providing Institution

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6. EDIBLE SALT

S/N	Test property	Brief Notes on The Parameter of The Test
1	Calcium	Total calcium content in the sample as determined using EDTA titrimetric method
		or by AAS
2	Magnesium	The total magnesium content in the sample as determined using EDTA titrimetric
		method or by AAS
3	Moisture at 105°C	The lost volatile matter in the sample by weight after drying in an Oven at 105°C to
		constant weight
4	Sulphate	Total sulphate content as determined gravimetrically
5	Matter –Insoluble- in water	All matter insoluble in water that is retained during filtration of salt sample solution
	/ //	on porosity 4 glass sintered crucible.
6	Chloride (expresses as	Total chloride expressed as NaCl determined by Argentometric titration
	NaCl)	
7	lodate content (expressed	Determination of Total lodate content expressed as lodine. Determined using
	as lodine)	Thiosulphate titration

Contact details of Edible Salt PT Providing Institution

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7. FERTILIZERS

S/N	Test property	Brief Notes on The Parameter of The Test	
1	Moisture content	Loss of weight by Vacuum desiccator Method using conc.H ₂ SO ₄ as a desiccant.	
2	Total Nitrogen	Back titration of excess acid after displacement of ammonia using an excess Sodium hydroxide	
	Ammoniacal	Back titration of excess acid after displacement of ammonia using an excess Sodium	
	Nitrogen	hydroxide after distillation of ammonia from alkaline solution.	
3	Total	Total phosphorous by a gravimetric method using Quinoline phosphomolybdate solution @	
	Phosphorus	250 °C	
4	Potassium as	Determination of potassium by precipitation of potassium ions by excess Sodium	
	K ₂ O	Tetraphylborate (NaTPB) in a weakly alkaline medium.	

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8. HONEY

S/N	Test property	Brief Notes on The Parameter of The Test	
1	Moisture	This is a criterion that determines the stability of honey to spoilage and yeast formation. Measured by refractometer or oven	
2	Hydroxymethylfurfural (HMF) It is an indicator of the freshness of honey. Expressed in mg/kg		
3	Ash content	The inorganic residue remaining upon incineration of the honey sample at 550°C - 600°C	
4	Acidity	Free acids expressed in milliequivalents/kg of honey	
5	Water-insoluble matter Measures cleanness of honey as All matter insoluble in water that is retained during filtration of honey solution on porosity 3 glass sintered crucible		
6	Relative density Examines added materials other than honey, measured by pycnometric (density bottle)		
7	Reducing sugar content calculated as invert sugar, % m/m,	Examine the amount of reducing sugar in honey as inverted sugar	
8	Sucrose content Examine the amount of sucrose in honey expressed in % m/m.		
9	Fructose-glucose ratio	Examine the ration of fructose to glucose present in honey.	
10	Lead	The total content of lead in honey expressed in mg/kg	
11	Zinc	The total content of zinc in honey expressed in mg/kg	

Contact details of Honey PT Providing Institution

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9. **FRUIT JUICE**

S/N	Test property	Brief Notes on The Parameter of The Test	
1	рН	It is approximately the negative of the base 10 logarithms of the molar concentration,	
		measured in units of moles per litre, of hydrogen ions	
2	Brix	Degrees Brix (symbol °Bx) is the sugar content of an aqueous solution	
3	Alcohol content	The total amount of alcohol available in fruit juice indicates the degree of fermentation of the	
		juice.	
4	Acidity	The acid value obtained by titration	
5	Ascorbic acid	Vitamin C, also known as ascorbic acid and L-ascorbic acid, is a vitamin found in food and	
	(Vitamin C)	used as a dietary supplement	
6	Copper (as Cu)	The total content of copper in fruit juice expressed in mg/l	
7	Arsenic (as As)	The total content of Arsenic in fruit juice expressed in mg/l	
8	Lead (as Pb)	The total content of Lead in fruit juice expressed in mg/l	

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10. ENERGY DRINK

S/N	Test	Brief Notes on The Parameter of The Test	
	property		
1	рН	It is approximately the negative of the base 10 logarithms of the molar concentration, measured in	
		units of moles per litre, of hydrogen ions	
2	Brix	Degrees Brix (symbol °Bx) is the sugar content of an aqueous solution	
3	Caffeine	The total amount of caffeine content present in energy drinks, expressed in mg/l	
	N	ED DESCRIPTION ASSESSMENT OF THE STATE OF TH	

Contact details of fruit juice PT providing Institution

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11. SUGAR

S/N	Test property	Brief Notes on The Parameter of The Test	
1	Polarization	An aqueous solution of the sugar is polarized using a saccharimeter which is calibrated to read 100°S on the International Scale under specified condition	
2	Conductivity ash	An aqueous sugar solution of 28g/100g is prepared and its conductivity is determined at 20°C	
3	Moisture content	The loss of weight resulting from air drying of a sample of sugar at 105°C for three hours to constant weight	
4	Colour	The colour of filtered aqueous sugar solution is measured using a wavelength of 420 nm	
5	Sulphur dioxide	The total residual Sulphur dioxide content as determined by a titration method	
6	Water-insoluble	An aqueous sugar to be tested is filtered through a pre-weighed membrane filter of pore size	
	matter	8µm. The membrane and the insoluble matter retained on it are thoroughly washed, dried in an oven to constant weight, and weighed.	

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12. LAUNDRY SOAP

S/N	Test property	Brief Notes on The Parameter of The Test
1	Free caustic alkali, as NAOH,	Result expressed as % m/m
2	Total free alkali, as NaOH,	Result expressed as % m/m
3	Moisture and volatile content, 105 °C	Result expressed as % m/m

4	Ethanol insoluble matter	Result expressed as % m/m
5	Matter insoluble in water	Result expressed as % m/m
6	Chloride content as NaCl	Result expressed as % m/m

Contact details of Laundry Soap PT providing Institution

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13. SKIN COSMETIC LOTION

S/N	Test prop <mark>er</mark> ty	Brief Notes o <mark>n The Parameter of The Test</mark>
1	Hydroquin <mark>one</mark>	Both qualitative and quantitative tests can be applied. Result expressed as % m/m or presence or absence
2	Thermal stab <mark>ility</mark>	Thermostatically controlled oven, capable of maintaining 37°C.
3	рН	It is approximately the negative of the base 10 logarithms of the molar concentration, measured in units of moles per liter, of hydrogen ions
4	Total fatty substance content	Result expressed as % m/m
5	Lead (as Pb)	The total content of Lead expressed in mg/l
6	Arsenic (as As)	The total content of Arsenic expressed in mg/l
7	Mercury (as Hg)	The total content of Mercury expressed in mg/l

Contact details of Skin Cosmetic Lotion PT providing Institution

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14. BLACK TEA

S/N	Test property	Brief Notes on The Parameter of The Test
1	Moisture content	The loss of weight resulting from oven drying of Black Tea sample at 105°C to constant weight
2	Water extracts	The total amount of water extracts in Black Tea
3	Total ash	The inorganic residue remaining upon incineration of Black Tea sample at 550°C - 600°C
4	Water-soluble ash	Amount of ash soluble in water
5	Acid insoluble ash	The measure of sandy matter in a black tea
6	The alkalinity of water-soluble ash	The alkalinity of water-soluble ash
7	Crude fibre	The loss in weight upon incineration at 550°C of the oven-dried residue remaining after sequential digestion of flour sample with H ₂ SO ₄ and NaOH
8	Polyphenols	Amount of polyphenols in black tea
9	Catechins	Amount of catechins in black tea
10	Anthocyanin <mark>s</mark>	Amount of anthocyanins in black tea
11	Caffeine	Amount of caffeine in black tea
12 Iron, Copper, Zinc Amount of trace elements in black		Amount of trace elements in black tea
13	Arsenic, Cad <mark>m</mark> ium and Lead	Amount of toxic element in black tea

Contact details of Black Tea PT Providing Institution

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15. INSTANT COFFEE

S/N	Test property	Brief Notes on The Parameter of The Test
1	Moisture content	The loss of weight resulting from oven drying of instant coffee sample at 105°C to constant weight
2	Total ash	The inorganic residue remaining upon incineration of instant coffee sample at 550°C -

		600°C
3	Caffeine content	Amount of Caffeine in instant coffee
4	Lead, Arsenic, Cadmium	Amount of toxin element in instant coffee

16. **GREEN COFFEE**

S/N	Test property	Brief Notes on The Parameter of The Test
		CAD C
1	Moisture content	The loss of weight resulting from oven drying of green coffee sample at 105°C to constant weight
2	Acid insoluble ash	Measure of Sandy matter in green coffee
3	Ochratoxin A	Amount of Ochratoxin A in green coffee
4	Lead, Arsenic, Cadmium	Amount of toxin element in green coffee

Contact details of Green & Instant coffee PT Providing Institution

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PART B: MICROBIOLOGY PT's

1. DAIRY MICROBIOLOGY – SKIM MILK POWDER SCHEME

S/N	Test property	Brief Notes on The Parameter of The Test
1	Total Viable Count	Result expressed as Colony forming units per gram, (cfu/g)
2	Coliforms	Result expressed as Colony forming units per gram, (cfu/g)
3	Escherichia coli	Result expressed as Colony forming units per gram, (cfu/g)
4	Coagulase positive Staphylococci	Result expressed as Colony forming units per gram, (cfu/g)
5	Listeria species	Result expressed as Presence/Absence per 25g grams
6	Listeria monocytogenes	Result expressed as Presence/Absence per 25g grams
7	Salmonella species	Result expressed as Presence/Absence per 25g grams

Contact details of Dairy Microbiology Skim Milk Powder PT Providing Institution

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2. MEAT AND FISH MICROBIOLOGY SCHEME

S/N	Test property	Brief Notes on The Parameter of The Test
1	Total Viable Count	Result expressed as Colony forming units per gram, (cfu/g)
2	Coliforms	Result expressed as Colony forming units per gram, (cfu/g)
3	Esc <mark>herichia c</mark> oli	Result expressed as Colony forming units per gram, (cfu/g)
4	Coagulase pos <mark>it</mark> ive Staphylococci	Result expressed as Colony forming units per gram, (cfu/g)
5	Listeria species,	Result expressed as Presence/Absence per 25g grams
6	Listeria monocytogenes	Result expressed as Presence/Absence per 25g grams
7	Salmonella species	Result expressed as Presence/Absence per 25g grams

Contact details of Meat and Fish Microbiology PT providing Institution

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3. BLACK TEA MICROBIOLOGY SCHEME

S/N	Test property	Brief Notes on The Parameter of The Test
1	Total Viable Count	Result expressed as Colony forming units per gram, (cfu/g)
2	Coliforms	Result expressed as Colony forming units per gram, (cfu/g)
3	Escherichia coli	Result expressed as Colony forming units per gram, (cfu/g)
4	Coagulase po <mark>si</mark> tiv <mark>e Staphylococci</mark>	Result expressed as Colony forming units per gram, (cfu/g)
5	Yeast	Result expressed as Colony forming units per gram, (cfu/g)
6	Molds	Result expressed as Colony forming units per gram, (cfu/g)
7	Yeasts and M <mark>ol</mark> ds	Result expresse <mark>d as Colony form</mark> ing units per gram, (cfu/g)
8	Salmonella	Result expressed as Presence/Absence per 25g grams

Contact details of Black Tea Microbiology PT providing Institution

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PART C: MATERIALS/ ENGINEERING PT's

1. PAINTS

S/N	Test property	Brief Notes on The Parameter of The Test
1.	Non- volatile matter	Thermal decomposition and evaporation of low molecular mass constituents, as per ISO 3251
2.	рН	Determination of potential of hydrogen ion concentration, as per EAS 851, annex F.
3.	Viscosity	Viscosity is a measure of how resistant a paint is to spreading. This is an important characteristic because it determines how it performs when applied with different tools like brushes, rollers, and sprayers.
4.	Fineness of grind	to determine particle size in paint

Contact details of Paint PT Providing Institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200	Ms. Tabitha Orwa Ahuya
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2. **FOAM MATTRESS**

S/N	Test property	Brief Notes on The Parameter of The Test
1.	Compression set	Amount of permanent deformation that occurs when a material is compressed to a specific deformation, for a specified time, at a specific temperature.
2.	Tear resistance	The purpose of performing the tear test on polyurethane foam is to measure the peak force during a foam tear. This provides a measure of the material's resistance to tearing.
3.	Tensile strength	Stress at the breaking point of a specimen
4.	Ultimate elongation (elongation at break)	Percentage strain produced in a specimen stretched to its breaking point

Contact details of Mattress PT Providing Institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200	Ms. Tabitha Orwa Ahuya
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3. ELECTRIC CABLES

S/N	Test property	Brief Notes on The Parameter of The Test
1	Conductor resistance	Conductor resistance at 20 °C as determined using IEC 63294: 2021 or equivalent method
2	Insulation thickness	The thickness of the insulation of electric cable as determined using IEC 60811-201or equivalent method

Contact details of Electric Cables PT Providing Institution

Provider	Contact Person / PT Coordinator
Tanzania Bureau of Standards	Ms. Mary Massawe
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	Email: mary.massawe@tbs.go.tz

4. SOLAR PANELS

S/N	Test property	Brief Notes on The Parameter of The Test
1	Maximum power output	Performance at STC (by using simplified normalization) as per IEC 60904-1

Contact details of Solar Panels PT Providing Institution

Provider	Contact Person / PT Coordinator
Tanzania Bureau of Standards	Ms. Mary Massawe
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5. **ROOFING SHEETS**

S/N	Test property	Brief Notes on The Parameter of The Test
1	Tensile strength (N/mm²)	Tensile strength of the metal with width 30mm
2	Top Color +primer (mm)	Color and the first complete layer of paint of a coating system applied to an uncoated surface on top.
3	Bottom Color (mm)	Is the wash coat or back coat applied to the bottom (unexposed) side of the sheet and may be pigmented or clear.
4	Base metal thickness (mm)	The thickness of sheet without any Coating
5	Bottom Substrate (mm)	Is the amount of Zinc or Aluzinc on the bottom side
6	Top Substrate (mm)	Is the amount of Zinc or Aluzinc on Topside

Contact details of roofing sheets PT Providing Institution

Provider	Contact Person / PT Coordinator
Tanzania Bureau of Standards - TBS	Mr. Ramadhan S Shija
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6. STEEL BARS

	Test property	Brief Notes on The Parameter of The Test
1	Mass Per Unit Length (M/L), [Kg/M]	The ratio of Mass and Length
2	Nominal cross-sectional area), [Mm2]	Ration of Mass Per Unit Length (M/L) and density
3	Upper Yield Stress (Reh), [N/Mm2]	The ratio of Maximum Yield force and Nominal cross-sectional area),
4	Tensile Strength (Rm), [N/Mm2]	The ratio of Maximum Load and Nominal cross-sectional area),
5	Elongation at Fracture (At) [%]	2w2qThe ratio of Change in Length and Original length

NJUMUIYA YA AFRIKA MASHARIKI

Contact details of Steel bars PT providing Institution

Provider	Contact Person / PT Coordinator

Tanzania Bureau of Standards - TBS Ubungo, Morogoro Road / Sam Nujoma Rd. P.O. Box 9524, Dar es Salaam, Tanzania.

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7. **TEXTILES**

S/N	Test property	Brief notes on the parameter of the test
1	Breaking strength and elongation at break	50mm raveled strip as per ISO 13934-1
2	Mass per unit area	Small swatches as per ISO 3801
3	Fibre composition and proportion	Proportion as per ISO 1833
4	Construction-Threads per unit length	Woven fabric, as per ISO 7211-2

Contact details of Textiles PT Providing Institution

Kenya Bureau of Standards Mr. Enock Katam

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PART D: FREE TRIAL PT's

1. LEATHER

S/N	Test property	Brief Notes on The Parameter of The Test
1.	Tensile strength,	Percentage strain produced in a specimen stretched to its breaking point as per ISO 3376.
2.	Elongation,	Stress at the breaking point of a leather specimen as per ISO 3376 or
3.	Tear strength,	The purpose of performing the tear test on leather is to measure the peak force during a leather tear. This provides a measure of the material's resistance to tearing as per ISO 3377
4.	Thickness	Reported in mm to the nearest 0.01mm on finished products as per ISO 2589

Contact details of Leather PT Providing Institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200	Ms. Tabitha Orwa Ahu <mark>ya</mark>
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