



## EAC PROFICIENCY TESTING SCHEME ROUND 12, 2017

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

#### 1. FLOUR (MAIZE FLOUR & WHEAT FLOUR)

Test property	Brief notes on parameter of test
Moisture	The loss of weight resulting from oven drying of flour sample at 105°C /130°C to constant weight
Crude protein	Total amount of protein in flour sample as determined using Kjeldahl method of nitrogen analysis
Crude fat	Total amount of fat in flour sample as determined using solvent extraction method after hydrolyzing the sample.
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 <sub>2</sub> SO <sub>4</sub> and NaOH
Total ash	Inorganic residue remaining upon incineration of flour sample at 550°C - 600°C
Acidity of extracted fat	Quantity of acids, essentially non-esterified fatty acids, expressed in mg of KOH per 100g of dry matter
Gluten	Total content of gluten in flour sample
Vitamin A	Total content of vitamin A in flour sample
Copper	Total content of copper in flour sample
Iron	Total content of iron in flour sample
Zinc	Total content of zinc in flour sample
Aflatoxins (maize flour)	Amount of aflatoxin B1, B2, G1, G2 and Total aflatoxin in maize flour sample

#### Contact details of flour PT Providing institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA <i>Tel:</i> +254 20 6948446/459/000 <i>Fax:</i> +254 20 604031/609660 <i>Web:</i> <a href="http://www.kebs.org">www.kebs.org</a>	Mr. Anthony Irungu/ Dr. Geoffrey Muriira  <i>Organisational unit:</i> Food and Agriculture Laboratory <i>Tel.:</i> +254 20 6948000/446/459 <i>Fax:</i> +254 20 604031/609660 <i>Email:</i> <a href="mailto:irungu@kebs.org">irungu@kebs.org</a> / <a href="mailto:muriirag@kebs.org">muriirag@kebs.org</a>

## 2. EDIBLE OIL

Test property	Brief notes on parameter of test
Nickel content	Total content of nickel in the oil sample
Copper content	Total content of copper in the oil sample
Moisture & volatiles content	The lost matter in the sample by weight after drying sample to constant weight.
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.
Iodine value	Mass of halogen, expressed as iodine, absorbed by the test portion of edible vegetable oil. Iodine value is expressed as grams per 100 g of oil.
Peroxide value	Total quantity of those substances in the edible vegetable oil sample, expressed in terms of active oxygen, that oxidize potassium iodide.
Density, relative	Density of the oil sample expressed in multiples of the density of pure water at the same temperature as that of the test sample.
Acid value	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

Provider	Contact Person / PT Coordinator
UNBS, Uganda National Bureau of Standards P.O. Box 6329 Plot M217 Nakawa Industrial Area Kampala, UGANDA Tel.: +256 414 505995/222367 Fax: +256 414 286123 Web: <a href="http://www.unbs.go.ug">http://www.unbs.go.ug</a>	Mr. Phenny H. Dentons Kaviiri <i>Organisational unit:</i> Chemistry Laboratory Tel.: +256 414 505995/222367 Fax: +256 414 286123 Email: <a href="mailto:kphennyd@gmail.com">kphennyd@gmail.com</a> , <a href="mailto:dentons.kaviiri@unbs.go.ug">dentons.kaviiri@unbs.go.ug</a>

## 3. EDIBLE SALT

Test property	Brief notes on parameter of test
Calcium	Total calcium content in sample as determined using EDTA titrimetric method or by AAS
Magnesium	Total magnesium content in sample as determined using EDTA titrimetric method or by AAS
Moisture at 105°C	The lost volatile matter in the sample by weight after drying in an Oven at 105°C to constant weight
Sulphate	Total sulphate content as determined gravimetrically
Matter –Insoluble- in water	All matter insoluble in water that is retained during filtration of salt sample solution on porosity 4 glass sintered crucible.
Chloride as NaCl	Total chloride expressed as NaCl determined by Argentometric titration
Iodate as Iodine	Determination of Total Iodate content expressed as Iodine. Determined using Thiosulphate titration

## Contact details of edible salt PT Providing institution

Provider	Contact Person / PT Coordinator
<p>TBS, Tanzania Bureau of Standards  P.O.Box 9524  Morogoro/Sam Nujoma Roads, Ubungo  Dar es Salaam, Tanzania  Tel.: +255(22)2450298/2450206/2450949  Fax: +255 22 245 0959  Web: <a href="http://www.tbs.go.tz">www.tbs.go.tz</a></p>	<p>Ms Edith Lyimo/ Ms Julieth Elibariki</p> <p><i>Organisational unit:</i>  Chemistry Laboratory  Tel.: +255(22)2450298/2450206/2450949  Fax: +255 22 245 0959  Email: <a href="mailto:edith_lyimo@yahoo.com">edith_lyimo@yahoo.com</a>,  <a href="mailto:edith.lyimo@tbs.go.tz">edith.lyimo@tbs.go.tz</a>, <a href="mailto:julieth.machenje@tbs.go.tz">julieth.machenje@tbs.go.tz</a></p>

## 4. SUGAR

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

## Contact details of sugar PT Providing institution

Provider	Contact Person / PT Coordinator
<p>Rwanda Standards Board  P.O. Box: 7099 Kigali-Kicukiro,  RWANDA</p> <p>Tel: +250 252-582945  Fax: +250 252-583305  Web:: <a href="http://www.rsb.gov.rw">www.rsb.gov.rw</a></p>	<p>Mr. Antoine Mukunzi/ Ms Egidia Nkezabera</p> <p><i>Organisational unit:</i>  National Quality Testing laboratories  Tel.:+250 788777431/+250 788443238  Fax: +250 252-583305  Email: <a href="mailto:antoine.mukunzi@rsb.gov.rw">antoine.mukunzi@rsb.gov.rw</a> /  <a href="mailto:egidia.nkezabera@rsb.gov.rw">egidia.nkezabera@rsb.gov.rw</a></p>

## 5. HONEY

Test property	Brief notes on parameter of test
Moisture	This is a criterion that determines stability of honey to spoilage and yeast formation. Measured by refractometer or oven
Hydroxy methyl furfural (HMF)	It is an indicator of freshness of honey. Expressed in mk/kg
Ash content	Inorganic residue remaining upon incineration of honey sample at 550°C - 600°C
Acidity	Free acids expressed in milliequivalents/kg of honey
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
Relative density	Examines added materials other than honey, measured by pycnometer (density bottle)
Lead	Total content of lead in honey expressed in mg/kg
Zinc	Total content of zinc in honey expressed in mg/kg

### Contact details of Honey PT Providing institution

Provider	Contact Person/PT Coordinator
TBS, Tanzania Bureau of Standards P.O.Box 9524 Morogoro/Sam Nujoma Roads, Ubungo Dar es Salaam, Tanzania <i>Tel.:</i> +255(22)2450298/2450206/2450949 <i>Fax:</i> +255 22 245 0959 <i>Web:</i> <a href="http://www.tbs.go.tz">www.tbs.go.tz</a>	Ms Stella Mrosso / Mr. Kalebo Habakuki <i>Organisational unit:</i> Food Laboratory <i>Tel.:</i> +255(22)2450298/2450206/2450949 <i>Fax:</i> +255 22 245 0959 <i>Email:</i> <a href="mailto:smrossocoll@yahoo.com">smrossocoll@yahoo.com</a> / <a href="mailto:habakuki.kalebo@tbs.go.tz">habakuki.kalebo@tbs.go.tz</a>

## 6. BLACK TEA CHEMICAL ANALYSIS

Test property	Brief notes on parameter of test
Water extracts	-
Total Ash	-
Water Insoluble Ash	-
Alkalinity of Water Soluble Ash	-
Acid Insoluble Ash	-
Crude Fibre	-

## Contact details of Black Tea PT providing institution

Organisation	Contact Person
Burundi Bureau of Standards (Bureau Burundais de Normalisation) (BBN) Boulevard de la Tanzanie No 500 B.P 3535 Bujumbura, Burundi Tel: +257-22 221577 / 22 221815, Web : <a href="http://www.bbn.bi">www.bbn.bi</a>	<b>Mr. Eric Ruracenyeka / Mr. Felix Cimpaye</b> <b>Chemistry Laboratory</b> E-mail: <a href="mailto:ruraeric@yahoo.fr">ruraeric@yahoo.fr</a> <a href="mailto:flicximpaye@yahoo.fr">flicximpaye@yahoo.fr</a> Organisational unit: Chemistry Laboratory

## 7. ANIMAL FEED

Test property	Brief notes on parameter of test
<b>Moisture</b>	The loss of weight resulting from oven drying of feed sample at 105°C /130°C to constant weight
<b>Crude Protein</b>	Total amount of protein in feed sample as determined using Kjeldahl method of nitrogen analysis
<b>Crude Fat</b>	Total amount of fat in feed sample as determined using solvent extraction method after hydrolyzing the sample.
<b>Crude Fibre</b>	The loss in weight upon incineration at 550°C of the oven dried residue remaining after sequential digestion of feed sample with H <sub>2</sub> SO <sub>4</sub> and NaOH
<b>Total Ash</b>	Inorganic residue remaining upon incineration of feed sample at 550°C - 600°C
<b>Acid Insoluble Ash</b>	Measure of sandy matter in a feed
<b>Calcium</b>	Total content of calcium in feed
<b>Phosphorous</b>	Total content of phosphorous in feed

## Contact details of PT Animal feed Providing institution

Organisation	Contact Person
Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA  Tel: +254 20 6948446/459/000 Fax: +254 20 604031/609660 Web: <a href="http://www.kebs.org">www.kebs.org</a>	<b>Mr. Anthony Irungu/ Dr. Geoffrey Muriira</b> Organisational unit: Food and Agriculture Laboratory  Tel.: +254 20 6948000/446/459 Fax: +254 20 604031/609660 Email: <a href="mailto:irungu@kebs.org">irungu@kebs.org</a> / <a href="mailto:muriirag@kebs.org">muriirag@kebs.org</a>

## 8. FERTILIZERS

Test property	Brief notes on parameter of test
Moisture	Loss of weight by Vacuum desiccator Method using conc.H <sub>2</sub> SO <sub>4</sub> as desiccant.
Total Nitrogen	Back titration of excess-acid after displacement of ammonia by means of an excess Sodium hydroxide
Ammoniacal Nitrogen	Back titration of excess-acid after displacement of ammonia by means of an excess Sodium hydroxide
Total Phosphorus	Total phosphorous by gravimetric method using Quinoline phosphomolybdate solution @ 250 °C
Water Soluble Phosphate	Gravimetric determination of soluble phosphorus leached with water using Quinoline phosphomolybdate

### Contact details of Fertilizer PT Providing institution

Provider	Contact Person
<p>TBS, Tanzania Bureau of Standards  P.O.Box 9524  Morogoro/Sam Nujoma Roads, Ubungo  Dar es Salaam  Tanzania</p> <p>Tel.: +255(22)2450298/2450206/2450949  Fax: +255 22 245 0959  Web: <a href="http://www.tbs.go.tz">www.tbs.go.tz</a></p>	<p>Edith Lyimo/ Julieth Elibariki  <i>Organisational unit:</i>  Chemistry Laboratory</p> <p>Tel.: +255(22)2450298/2450206/2450949  Fax: +255 22 245 0959  Email: <a href="mailto:edith_lyimo@yahoo.com">edith_lyimo@yahoo.com</a> /  <a href="mailto:edith.lyimo@tbs.go.tz">edith.lyimo@tbs.go.tz</a> ,  <a href="mailto:julieth.machenje@tbs.go.tz">julieth.machenje@tbs.go.tz</a></p>

## 9. ALCOHOLIC BEVERAGE (GIN)

Tested property	Brief notes on parameter of test
Alcohol content	Result expressed as %v/v of sample
Total solids content	Result expressed as mg/L of sample
Total acids as tartaric acid	Result expressed as mg/Litre of absolute alcohol
Volatile acids as acetic acid	Result expressed as mg/Litre of absolute alcohol
Esters as ethyl acetate	Result expressed as mg/Litre of absolute alcohol
Aldehydes as acetaldehyde	Result expressed as mg/Litre of absolute alcohol
Methanol	Result expressed as mg/Litre of sample

### Contact details of Alcoholic beverage (Gin) PT Providing institution

Organisation	Contact Person
UNBS, Uganda National Bureau of Standards P.O. Box 6329 Plot M217 Nakawa Industrial Area Kampala, UGANDA  <i>Tel.:</i> +256 414 505995/222367 <i>Fax:</i> +256 414 286123 <i>Web:</i> <a href="http://www.unbs.go.ug">http://www.unbs.go.ug</a>	Mr. Phenny H. Dentons Kaviiri <i>Organisational unit:</i> Chemistry Laboratory  <i>Tel.:</i> +256 414 505995/222367 <i>Fax:</i> +256 414 286123 <i>Email:</i> <a href="mailto:kphennyd@gmail.com">kphennyd@gmail.com</a> , <a href="mailto:dentons.kaviiri@unbs.go.ug">dentons.kaviiri@unbs.go.ug</a>

### 10. UHT MILK – physical-chemical analysis

Test property	Brief notes on parameter of test
Milk fat	Proportion of milk by weight made of butterfat
Density at 20°C	Ratio of density to the density of standard substance (water) at 4°C
Protein	Total amount of protein in milk sample as determined using Kjeldahl method of nitrogen analysis
Total solids	Non-water components of the milk
Titratable acidity	Total acidity of the milk
Freezing point depression	The value of freezing point depression of milk
pH variation on 5 days incubation	The difference in pH value before and after incubation of milk for 5 days at 55°C
Calcium	Total content of calcium in milk sample
Lactose	Total content of lactose in milk sample

### Contact details of UHT MILK PT Providing institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA <i>Tel:</i> +254 20 6948446/459/000 <i>Fax:</i> +254 20 604031/609660 <i>Web:</i> <a href="http://www.kebs.org">www.kebs.org</a>	Mr. Anthony Irungu/ Dr. Geoffrey Muriira  <i>Organisational unit:</i> Food and Agriculture Laboratory <i>Tel.:</i> +254 20 6948000/446/459 <i>Fax:</i> +254 20 604031/609660 <i>Email:</i> <a href="mailto:irungu@kebs.org">irungu@kebs.org</a> / <a href="mailto:muriirag@kebs.org">muriirag@kebs.org</a>

## 11. DAIRY MICROBIOLOGICAL – SKIM MILK POWDERS SCHEME

Test property	Brief notes on parameter of test
Total Viable Count	Result expressed as Colony forming units per gram, (cfu/g)
Coliforms	Result expressed as Colony forming units per gram, (cfu/g)
<i>Escherichia coli</i>	Result expressed as Colony forming units per gram, (cfu/g)
Coagulase positive <i>Staphylococci</i>	Result expressed as Colony forming units per gram, (cfu/g)
<i>Listeria species</i>	Result expressed as Presence/Absence per 25g grams
<i>Listeria monocytogenes</i>	Result expressed as Presence/Absence per 25g grams
<i>Salmonella species</i>	Result expressed as Presence/Absence per 25g grams

### Contact details of flour PT Providing institution

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Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA Tel: +254 20 6948446/459/000 Fax: +254 20 604031/609660 Web: <a href="http://www.kebs.org">www.kebs.org</a>	Mr. Clarkson Agembo/ Daniel Omulogoli <i>Organisational unit:</i> Microbiology Laboratory Tel.: +254 20 6948000/460/344 Fax: +254 20 604031/609660 Email: <a href="mailto:agemboc@kebs.org">agemboc@kebs.org</a> / <a href="mailto:omulogolid@kebs.org">omulogolid@kebs.org</a>

## 12. MEAT AND FISH MICROBIOLOGICAL SCHEME

Test property	Brief notes on parameter of test
Total Viable Count	Result expressed as Colony forming units per gram, (cfu/g)
Coliforms	Result expressed as Colony forming units per gram, (cfu/g)
<i>Escherichia coli</i>	Result expressed as Colony forming units per gram, (cfu/g)
Coagulase positive <i>Staphylococci</i>	Result expressed as Colony forming units per gram, (cfu/g)
<i>Listeria species,</i>	Result expressed as Presence/Absence per 25g grams
<i>Listeria monocytogenes</i>	Result expressed as Presence/Absence per 25g grams
<i>Salmonella species</i>	Result expressed as Presence/Absence per 25g grams
<i>Vibrio species,</i>	Result expressed as Presence/Absence per 25g grams
<i>Vibrio parahaemolyticus</i>	Result expressed as Presence/Absence per 25g grams



### Contact details of flour PT Providing institution

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Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA <i>Tel:</i> +254 20 6948446/459/000 <i>Fax:</i> +254 20 604031/609660 <i>Web:</i> <a href="http://www.kebs.org">www.kebs.org</a>	Mr. Clarkson Agembo/ Daniel Omulogoli <i>Organisational unit:</i> Microbiology Laboratory <i>Tel.:</i> +254 20 6948000/460/344 <i>Fax:</i> +254 20 604031/609660 <i>Email:</i> <a href="mailto:agemboc@kebs.org">agemboc@kebs.org</a> / <a href="mailto:omulogolid@kebs.org">omulogolid@kebs.org</a>

### 13. BLACK TEA MICROBIOLOGICAL SCHEME

Test property	Brief notes on parameter of test
Total Viable Count	Result expressed as Colony forming units per gram, (cfu/g)
Coliforms	Result expressed as Colony forming units per gram, (cfu/g)
<i>Escherichia coli</i>	Result expressed as Colony forming units per gram, (cfu/g)
<i>Coagulase positive Staphylococci</i>	Result expressed as Colony forming units per gram, (cfu/g)
<i>Yeast</i>	Result expressed as Colony forming units per gram, (cfu/g)
<i>Molds</i>	Result expressed as Colony forming units per gram, (cfu/g)
<i>Yeasts and Molds</i>	Result expressed as Colony forming units per gram, (cfu/g)
<i>Salmonella</i>	Result expressed as Presence/Absence per 25g grams

### Contact details of flour PT Providing institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA <i>Tel:</i> +254 20 6948446/459/000 <i>Fax:</i> +254 20 604031/609660 <i>Web:</i> <a href="http://www.kebs.org">www.kebs.org</a>	Mr. Clarkson Agembo/ Daniel Omulogoli <i>Organisational unit:</i> Microbiology Laboratory <i>Tel.:</i> +254 20 6948000/460/344 <i>Fax:</i> +254 20 604031/609660 <i>Email:</i> <a href="mailto:agemboc@kebs.org">agemboc@kebs.org</a> / <a href="mailto:omulogolid@kebs.org">omulogolid@kebs.org</a>

#### 14. FRUIT JUICE

Test property	Brief notes on parameter of test
<b>pH</b>	It is approximately the negative of the base 10 logarithm of the molar concentration, measured in units of moles per liter, of hydrogen ions
<b>Brix</b>	Degrees Brix (symbol °Bx) is the sugar content of an aqueous solution
<b>Acidity</b>	Acid value obtained by titration
<b>Ascorbic acid (Vitamin C)</b>	Vitamin C, also known as ascorbic acid and L-ascorbic acid, is a vitamin found in food and used as a dietary supplement
<b>Copper (Cu)</b>	Total content of copper in fruit juice expressed in mg/l
<b>Arsenic (As)</b>	Total content of Arsenic in fruit juice expressed in mg/l
<b>Lead (Pb)</b>	Total content of Lead in fruit juice expressed in mg/l

#### Contact details of fruit juice PT Providing institution

Provider	Contact Person/PT Coordinator
TBS, Tanzania Bureau of Standards P.O.Box 9524 Morogoro/Sam Nujoma Roads, Ubungo Dar es Salaam, Tanzania <i>Tel.:</i> +255(22)2450298/2450206/2450949 <i>Fax:</i> +255 22 245 0959 <i>Web:</i> <a href="http://www.tbs.go.tz">www.tbs.go.tz</a>	Ms Stella Mrosso / Mr. Kalebo Habakuki <i>Organisational unit:</i> Food Laboratory <i>Tel.:</i> +255(22)2450298/2450206/2450949 <i>Fax:</i> +255 22 245 0959 <i>Email:</i> <a href="mailto:habakuki.kalebo@tbs.go.tz">habakuki.kalebo@tbs.go.tz</a> <a href="mailto:smrossocoll@yahoo.com">smrossocoll@yahoo.com</a> /