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Thousands of substandard condoms being disposed of at Pugu Kajiungeni in Dar es Salaam. During the period July to December 2014, TBS implemented the Standards Act No. 2 of 2009 by destroying, seizing and ordering recall of various substandard products on various occasions.



VISION

In line with the National Development Vision 2015, TBS's Vision is to be an organization that is nationally and internationally known as the centre of excellence in standardization and quality assurance activities.

MISSION

The organization's mission is to inculcate awareness into, and promote adoption of standardization and quality assurance by the industry and commerce sectors with a view to complement national efforts to offer products of better quality and higher competitive edge on both the internal and external markets, with the overall objective of promoting the availability of good and safe products for the Tanzanian public and enhancing economic development.

QUALITY POLICY

Tanzania Bureau of Standards (TBS) endeavours, as mandated, to deliver quality products that include standards and quality assurance services by meeting and even exceeding customers' requirements so as to retain their loyalty. TBS provides resources and continually improves her processes to ensure that employees are capable of consistently producing quality products at the right time.

CORE VALUES

A) CONSUMER FOCUS

TBS shall deliver services to meet maximum consumer's expectations.

B) PROFESSIONALISM

TBS shall uphold the highest professional standards in service delivery to its customers by ensuring that services are delivered in the right quality and at the right time.

C) QUALITY CULTURE

TBS shall ensure that quality culture is sustained and all stakeholders are involved in standardization and quality assurance activities.

D) ACCOUNTABILITY

Every TBS employee shall be personally responsible for the final quality of his/her job, exercise diligence to duty and efficient utilization of resources.

E) INTERNATIONALIZATION

TBS shall participate in regional and international standardization work.

F) TEAM WORK

TBS employees shall demonstrate highest level of commitment, by working together, collaborating and coordinating in discharging their duties.

G) TRANSPARENCY

TBS employees shall exercise openness, impartiality, accurately and promptly share information with all stakeholders.

H) INTEGRITY

TBS employees shall emphasize all forms of integrity which are consistency of actions, values, methods, measures, principles, expectations and outcomes. In ethics, employees shall exercise integrity in terms of honesty and truthfulness or accuracy of one's actions.

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SALT QUALITY SHOULD NOT BE TAMPERED WITH

In December, 2014, Tanzania Bureau of Standards (TBS) closed down a salt producing factory, Sea Salt Limited Company based in Bagamoyo, for producing sub-standard salt. The salt, known as 'Sea Salt', was proved to lack essential ingredients when tested against the Tanzania Standard for salt. Specifically, the salt lacked iodine and contained insoluble particles.

Whereas the Tanzania Standard for salt specifies the amount of iodine in salt to be 30 mg/kg minimum and 60 mg/kg maximum, the amount of iodine found in Sea Salt was 14.6 mg/kg, which was far below the minimum limit stipulated. On the other hand, the insoluble substances in the salt exceeded the standard limits.

Scientifically, salt is a mineral substance composed primarily of sodium chloride, a chemical compound belonging to the larger class of ionic salts. As well as its use in cooking and at the table, salt is present in many processed foods and it is essential to the health of people and animals. It is used in cooking, is added to manufactured foodstuffs and is often present on the table at mealtimes for individuals to sprinkle on their own food.

Some table salt sold for consumption contain additives which address a variety of health concerns, especially in the developing world. The identities and amounts of additives vary widely from country to country and are usually stipulated in national standards or regulations.

Iodine is essential for normal growth and development in humans. Iodine deficiency causes under-production of the thyroid hormone, a condition called hypothyroidism. People who suffer from hypothyroidism have a depressed metabolic rate, which among other things means improper assimilation of vital nutrients. When the deficiency is serious, as it inevitably is if a modern lifestyle does not include iodized salt, it

causes goiter and what has traditionally been called cretinism. Iodine Deficiency Disorder (IDD), to give it its proper name, comprises psychomotor defects, impaired mental functions and slow cognitive development. Pregnant women, foetuses, infants and children are always at higher risk of developing IDD.

**ENSURING THAT
CONSUMERS GET
PRODUCTS THAT
TRULY REFLECT THE
VALUE OF THEIR
MONEY, WHILE AT
THE SAME TIME
SAFEGUARDING
THEIR HEALTH AND
SAFETY.**

Requirements for iodine in salt produced, distributed and consumed in Tanzania are stipulated in the National Standard for the product. The Tanzania Standard for salt, TZS 132:2014-EAS 35:2013, *Fortified food grade salt* — *Specification* specifies the requirements and methods of sampling and test for fortified food grade salt, namely coarse salt, crushed salt and table salt intended for human consumption. Among other requirements, the standard stipulates that fortified food grade salt shall be practically free from grit and other extraneous adulterants when visually examined, and shall be free flowing.

The Standard also stipulates the compositional requirements of salt, setting levels for chloride content, moisture content, matter insoluble in water, water soluble calcium, copper, magnesium, sulphate, total alkalinity, acid insoluble matter and pH.

Moreover, the Standard stipulates iodine levels, maximum limits for heavy metals,

maximum residue limits and packaging and transportation requirements which state that salt shall be packaged in food grade, non-absorbent materials which do not have adverse influence upon effects on the composition of the product, its properties and appearance. The standard is a compulsory standard as it safeguards the health of consumers.

Current studies have demonstrated a marked improvement in iodine nutrition in Tanzania. But with unscrupulous traders, this success may be under threat, thus need for immediate intervention. It is against this background that we applaud the measure taken by the Bureau so far to curb the production of substandard salt in the said factory. However, Tanzania being a developing country means there are still numerous challenges facing the Bureau in ensuring that the local market is free from substandard products.

On various occasions from January to December 2014, the Bureau managed to close various factories producing different products in Dar es Salaam, Arusha, Kilimanjaro, Mbeya, Morogoro and Coastal regions. The products include steel bars, juice, breads and bitumen. The Bureau also took various measures to crack down sale and distribution of used undergarments and male condoms, including seizure and closure of various shops selling substandard lubricants.

Much as we would like to commend the actions so far taken by the Bureau, we would also like to take this opportunity to call upon manufacturers and distributors of various products to abide by the provisions of the Standards Act No. 2 of 2009 and its Regulations, so as to ensure that consumers get products that truly reflect the value of their money, while at the same time safeguarding their health and safety. On the part of the Bureau, we believe that this is just the beginning of a long and painstaking journey towards ensuring that the Tanzanian market is free from substandard products.

EA BUREAUX HARMONIZE 18 STANDARDS

East Africa Bureau of Standards have harmonized 18 new standards and adopted 15 international ones to make the region more competitive when it comes to intra-region and international trading activities.

Standards harmonization follows the 18th East African Standards Committee Meeting drawing Heads of National Standards Bodies from Rwanda, Burundi, Uganda, Kenya and Tanzania held in Arusha.

The Managing Director of the Kenya Bureau of Standards (KEBS) and Chairman of the Committee Mr. Charles Ongwae said so far the five East African Community member states have managed to harmonize a total of 1,200 standards that are accepted across the borders.

The move has been described as helpful in facilitating trade, reducing costs of operation and speeding movement of goods within the bloc.

Among other things the committee also addressed the issue of differing axle loads requirements for each country, which had remained a major stumbling block for transporters in the region.

On the issue of transport, the Director General of the Rwanda Standards Board (RSB), Dr. Mark Bagabe admitted that there have been complaints regarding road regulations applying in different member states. He said, for example, that whereas Rwanda and Burundi drive on the right, the rest of East African states use the left side of the road.

"We don't find that to be a really big issue compared to other demanding challenges currently being faced by member states," he stated.

The 18th East African Standards Committee meeting was officially opened by the Director for Infrastructure at the EAC Secretariat, Mr. Phillip Wambugu, who lauded the support of development partners in assisting the region on the standardisation process.

TBS ORGANISES FIRST WORLD STANDARDS DAY EXPO

Tanzania Bureau of Standards has for the first time marked the World Standards Day by organizing a four day symposium which drew more than 20 manufacturing companies and other participants from other organizations.

TBS Acting Director General Mr. Joseph Masikitiko said the event was the platform for exhibitors to familiarize themselves with new products and services that will enable them make informed decisions.

Speaking on behalf exhibitors, Selina Nyambo from Bora Industries thanked Tanzania Bureau of Standards for organizing the expo and said standards play a crucial role in the development of the private sector particularly those in the import and export sectors.

She also said participation in trade fairs and exhibitions provides reliable ground for domestic entrepreneurs and traders



The Minister for Industry and Trade Hon. Dr. Abdallah Kigoda (right) speaking to Bora Industries exhibitor, Ms. Selina Nyambo (left) during the World Standards Day Exhibitions at Karimjee grounds.

THE WORLD STANDARDS DAY IS COMMEMORATED ON 14TH OCTOBER EACH YEAR TO HONOUR EFFORTS OF THE THOUSANDS OF EXPERTS WHO DEVELOP STANDARDS WORLDWIDE AND TO RAISE AWARENESS AMONG REGULATORS INDUSTRY AND CONSUMERS AS TO THE IMPORTANCE OF STANDARDIZATION TO THE GLOBAL ECONOMY.

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to secure markets and network.

The date for the World Standards Day, October 14 was chosen because it was on that day in 1946 that delegates from 25 countries first gathered in London and consequently decided to create a new international organisation dedicated to the coordination and unification of standards work (ISO).

ISO was officially formed one year later and it was at the prompting of an ISO President that the first World Standards Day was celebrated on October 14, 1970.

The World Standards Day is commemorated on 14th October each year to honour efforts of the thousands of experts who develop standards worldwide and to raise awareness among regulators industry and consumers as to the importance of standardization to the global economy. TBS as a member of ISO is involved in the formulation of International Standards.

IMPORT STANDARDIZATION MARK ON THE DRAWING BOARD

Tanzania Bureau of Standards will soon introduce Import Standardization Mark for certified imported goods.

TBS Acting Director General, Mr. Joseph Masikitiko revealed recently during a grant of licences ceremony held at TBS Headquarters that the ultimate goal of the ISM is to protect the consumer from imported substandard products.



Import standardization mark (ISM)

"Substandard goods pose great health and safety risks to the consumers," he said, adding that substandard and counterfeit products also hurt local industries because they pose unfair competition against genuine products.

He said TBS is in the final stages of implementation and that all imported products will be required to bear the import standardization mark from TBS regardless of the fact that they may already have similar standard marks from their countries of origin.

In another development, TBS has announced plans to open zonal offices in Mwanza and Arusha regions this financial year.

"We want to serve more people and bring our services closer to people," Mr. Masikitiko said and added that the new offices will ease customers' access to TBS offices as most of them are now compelled to travel to Dar es Salaam, thus adding to their operational expenses.

"We will also open more border offices at Tunduma and Kasumulo in Mbeya region and Mutukula and Rusumo in Kagera region," he added.

The Bureau has also been working on a special campaign to mobilise small and medium entrepreneurs to get certification for their products to ensure that they meet required qualities which in turn will improve their access to both local and international markets.

Since 2008, over 230 SMEs have certified their products free of charge but much remains to be done since it is estimated that there are more than 800,000 SMEs operating in various economic sectors.

JUICE, SALT FACTORIES CLOSED

Tanzania Bureau of Standards has closed juice and salt factories over production of substandard products.

The move followed the routine market surveillance inspection conducted by TBS to all certified manufacturers as samples were taken for testing and found to have a number of flaws which can cause havoc to human health.

Regarding substandard juices produced by U-Fresh Food Limited by the name of U-Fresh and Devideic Group Limited by the name of INTO, juices were found with high percentage of total plate count and yeasts and mould and use of artificial sweeteners not intended for juices according to the Tanzania Standard for Ready to drink non-carbonated non-alcoholic beverage, TZS 585: 2011.

In addition, the companies had lied to TBS by saying they were using Kilombero sugar while they were actually using super sugar which is not meant for such products.

Apart from the products being substandard, the general environment for both factories were found to be unhygienic. This led to the availability of fungi and bacteria in both products.

Meanwhile, the Bureau closed the salt factory producing Sea Salt after testing and finding it to be substandard according to the Tanzania Standard for edible salt, TZS 132:2014/EAS 35:2013.

TBS received complaints from various consumers regarding the quality of Sea Salt, which prompted testing. The salt was found to be substandard as it contained minimal amount of iodine and could not easily dissolve in water.

The factories will resume production after taking corrective actions on the identified problems.

MODERN LABORATORIES TO ENHANCE EFFICIENCY



Mr. Joseph Masikitiko

Tanzania Bureau of Standards (TBS) is in last stages to commence the construction of a new six-storey building which will harbour modern and well equipped laboratories.

TBS Acting Director General Joseph Masikitiko revealed the plans recently while addressing the Bureau's staff at an end of year 2014 meeting held at the TBS

headquarters in Dar es Salaam.

Mr. Masikitiko said the construction of the building is the implementation of steps to enhance the country's sole standards body to enable it to perform its duties more efficiently and in a modernized way.

The Acting Director General said drawings of the expected modern structure have already been sent to the Ministry of Industry and Trade for further stages noting that the construction project is under the funding of the government of People's Republic of China.

Currently, TBS has nine well equipped laboratories with the capacity to carry out various tests and calibrations.

According to the TBS boss, the Bureau has attained remarkable achievements in the year 2014. He encouraged workers to keep on working hard in 2015 by adhering to public servants' code of ethics to ensure that more people are reached by TBS services.

He said in the year 2014, TBS has purchased different equipment and machines for its laboratories to enable its experts to perform their tasks more effectively. He added that in the last year TBS employed 45 new workers in various fields being one of the steps to expand its network of having workers all over the country.

He further said that before the end of the 2014/2015 financial year, TBS expects to establish new zonal offices in Arusha and Mwanza regions and other offices at Julius Nyerere International Airport and Kilimanjaro International Airport, while also opening up new offices at the borders of Mutukula and Rusumo in Kagera region and Tunduma and Kasumulo borders in Mbeya region.

STANDARDS SHOULD FOCUS ON PEOPLE'S NEED – ULEDI

African countries have been urged to give priority to safety, security and economic and social welfare of the people, when formulating standards.

The call was issued by the Permanent Secretary of the Ministry of Industry and Trade, Mr. Mussa Uledi, when opening a three-day Coordinating Committee for Africa (CCAFRICA)

colloquium on Codex, funded by the African Union and the United State of America.

Mr. Uledi elaborated that sometimes it is difficult for developing countries to have traceability of their goods which are being followed by markets in the European Union and the United States of America (USA).

"There is a need for the participants to address such challenges in order to meet the standards desired by consumers. In most cases we fail to use these opportunities even in preferential markets because we cannot meet international standards," he said.

He called for participants to use the opportunity to at least level the standards used by developed countries with those used by African countries in areas of goods exported and imported.

On her part, US Codex Manager said sponsoring issues like food safety standards is very important for both the US and Africa, and that what is needed is to identify areas of interest, challenges and find out solution. She said the aim of the project is to protect and support consumers, adding that food safety standards are vital.

Speaking earlier on behalf of TBS Director General, the Bureau's Director of Quality Management, Eng. Tumaini Mtitu said Africans have high hopes that the meeting will open doors for more discussion on issues pertaining to standards as the discussion will focus on common challenges that all countries have been facing.

The meeting which was hosted by Tanzania, through the Tanzania Bureau of Standards and funded by USA, follows a cry of African countries regarding failure of their goods to access international markets.

TBS EQUIPS TECHNICAL COMMITTEE CHAIRS

Tanzania Bureau of Standards (TBS) Technical Committees need to strive to come up with standards that will enable local products to penetrate in the international markets.

The Deputy Permanent Secretary of the Ministry of Industry and Trade, Ms. Maria Bilia made the call recently, when opening a two-day induction workshop on procedures for development of standards for Divisional and Technical Committees chairs.

Ms. Bilia said the committees should come up with standards that will help locally manufactured products to meet both local and international market requirements.

She said the country has a big number of entrepreneurs whose products are not certified by TBS due to lack of appropriate standards, thus research has to be conducted and appropriate standards set.

However, Ms. Bilia cautioned that the set national standards should not contradict regional and international standards as they would then become technical barriers to trade.

She called on technical committees to observe integrity since standards should consider both the national interests and the local environment.



The Permanent Secretary of the Ministry of Industry and Trade, Mr. Mussa Uledi delivers his address during the opening a three day Coordinating Committee for Africa (CCAFRICA) Colloquium in Dar es Salaam.



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A cross section of newly appointed Divisional and Technical Committee Chairs in a training session organized by TBS.

Earlier, the Chairperson of the TBS Board of Directors, Prof Cuthbert Mhilu said the formed technical committees consist of experts in various fields from higher learning institutions and the private and public sectors whom he believed would undertake research before developing standards which will facilitate trade.

In his speech read on his behalf by member of the TBS Board of Directors, Ms. Magdalena Uttouh, he said the induction workshop aimed at equipping the committee chairs with necessary information on the whole process of standardization.

He said TBS is hoping that the chairpersons and the members of the technical committees will develop standards which will be benchmarks for discussion as the nation participates in regional and international standardization at EAC, SADC, ARSO and ISO

levels.

TBS has an established national standardization system through which national standards are formulated. This system is based on the worldwide 'consensus principle' which works through the use of technical committees.

Currently there are more than 100 Technical Committees. The committees draw members from all stakeholder groups including industries, government ministries and institutions, research institutions, institutions of higher learning, business organizations and consumers.

**MAKING DIFFERENCE AND
MEETING EXPECTATIONS
THROUGH STANDARDIZATION.**

MEETINGS HELD

During the period July – December 2014, the following standardization meetings were held:

MEETING	DATE
Technical Committee on Metals and Structures (MEDC 2)	2014-07-01
Working Group under Forestry Technical Committee (EMDC 7)	2014-08-1
National Consultative meeting on land degradation and desertification	2014-08-11
National consultative meeting on Paper	2014-08-13 – 15
Technical Committee on fruits and vegetables (AFDC 12)	2014-08-19
Technical Committee on soap and detergents (CDC 2)	2014-09-24
Working Group under Water quality/effluents (CDC 6) Technical Committee	2014-09-25
Working Group under Fish and Fisheries Products Technical Committee (AFDC 23)	2014-09-25 – 26
National consultative meeting on sustainability	2014-09-26
Technical Committee on Metals and Structures (MEDC 2)	2014-09-30
Working Group on Animal Feeds Technical Committee (AFDC 9)	2014-09-30
National consultative meeting under Technical Committee (GTDC) on Quality Management and Quality Assurance	2014-10-09
Technical Committee on Metals and Structures (MEDC 2)	2014-10-10
Working Group under Technical Committee on Cosmetics and Creameries (CDC3)	2014-10-22 – 24
Technical Committee on Household (TDC3)	2014-10-30
National Consultation Committee on Traditional Medicine (CDC 16)	2014-11-18 – 19
Technical Committee on Household (TDC3)	2014-11-20
Technical Committee on Paper Products (CDC10)	2014-11-20
Technical Committee on Fish and Fisheries Products (AFDC 23)	2014-11-20 – 21
Technical Committee on Tea Products (AFDC 18)	2014-12-1 – 2
Technical Committee on Coffee and Coffee Products (AFDC 24)	2014-12-1 – 2
Technical Committee on Processed Fruits and Vegetables (AFDC 12)	2014-12-1 – 3
Technical Committee on Food Additives and Levels of Use (AFDC/05)	2012-12-02
Technical Committee Fresh Fruits and Vegetable (AFDC 26)	2014-12-4 – 6
Technical Committee on Cosmetics and Creameries (CDC3)	2014-12-10 – 12
Technical Committee on Spices and Condiments (AFDC 7)	2012-12-26 – 28
Technical Committee on Leather and Hides (TDC11)	2014-12-18
National Consultative Committee on Cereals and Cereal Products (AFDC 16)	2014-12-30

FINALIZED STANDARDS

During the period July — December 2014, the following standards were finalized:

1. **TZS 1721: 2014 (EAS225-1:2001)Textiles** – Umbrella fabric – Specification – Part 1: Cotton fabric
2. **TZS 1721: 2014 (EAS225-2:2001)Textiles** – Umbrella fabric - Specification – Part 2: Man made fibre fabric
3. **TZS 1721 :2014(EAS225-2:2001)Textiles** – Umbrella fabric - specification – Part 3: silk fabric
4. **TZS 1724: 2014 (EAS222:2001) Textiles** – Woven bags (100% sisal) for clean coffee beans- specification
5. **TZS 57: 2014- EAS 125:2011** Safety matches in box – Specification
6. **TZS 72: 2014 Toothpaste** – specification
7. **TZS 73: 2014 Toothbrush** – Specification
8. **TZS 275: 2014 Footwear**-Glossary of terms
9. **TZS 313: 2014/EAS 786:2013** Skin care creams, lotions and gels — Specification
10. **TZS 638-1: 2014/EAS 377:2013** Cosmetics and cosmetic products — Part 2: List of substances which cosmetic products must not contain except subject to the restrictions laid down
11. **TZS 638-2: 2014/EAS 377:2013** Cosmetics and cosmetic products — Part 1: List of substances prohibited in cosmetic products
12. **TZS 638-3: 2014/EAS 377:2013** Cosmetics and cosmetics products — Part 4: List of preservatives allowed in cosmetic products
13. **TZS 638-4: 2014/EAS 377:2013** Cosmetics and cosmetic products — Part 3: List of colorants allowed in cosmetic products
14. **TZS 638-5: 2014/EAS 377:2013** Cosmetics and cosmetic products – Part 5: List of UV filters allowed in cosmetic products
15. **TZS 651: 2014/EAS 355:2004** Toilet Paper — Specification
16. **TZS 774: 2014/EAS 346:2013** Labelling of cosmetics — General requirements
17. **TZS 775: 2014/EAS 338:2013** Chemical hair relaxers and hair waving products — Specification
18. **TZS 813: 2014/EAS 337:2013** Henna powder — Specification
19. **TZS 880: 2014/EAS 336:2013** Chemical depilatories — Specification
20. **TZS 881: 2014/EAS 335:2013** Cologne — Specification
21. **TZS 882: 2014/EAS 339:2013** Hair creams, lotions and gels — Specification
22. **TZS 884: 2014/EAS 342:2013** Pomades and solid brilliantines — Specification
23. **TZS 1659: 2014** Footballs-Specification
24. **TZS 1660: 2014** Leather-Polyurethane (PU) Coated Leather Specification
25. **TZS 1661: 2014** Code of practice for inspection and Acceptance Criteria for Used Footwear (Mitumba)
26. **TZS 1662: 2014** Footwear – Leather men's closed shoes –Specification
27. **TZS 1663: 2014** Footwear-Nylon laces for shoes and boots –Specification
28. **TZS 1686: 2014/EAS 334:2013** List by category of cosmetic products
29. **TZS 1687: 2014/EAS 340:2013** Nail polish — Specification
30. **TZS 1688: 2014/EAS 341:2013** Nail polish removers — Specification
31. **TZS 1689: 2014/EAS 461:2013** Hair dyes – Part 1: Aryl diamine based formulated powders — Specification.
32. **TZS 1689: 2014/EAS 461:2013** Hair dyes – Part 1: Aryl diamine based formulated powders — Specification.
33. **TZS 1691: 2014** Automatic Transmission Fluids (ATF) based on Road vehicles – Specification
34. **TZS 1693: 2014/EAS 293-1:2007** Road marking materials — Physical Properties
35. **TZS 1694: 2014/EAS 293-2:2007** Road marking materials — Road marking performance for road users
36. **TZS 1695: 2014/EAS 290-2:2002** Polishes – Specification – Part 2: Floor polishes solvent type (liquid and paste)
37. **TZS 1696: 2014/EAS 290-3:2002** Polishes – Specification – Part 3: Floor polish water emulsion buffable type
38. **TZS 1704: 2014/ EAS 19:2000** Fresh Avocado – Specification
39. **TZS 1705: 2014/ EAS 47:2000** Fresh Papaya – Specification

40. **TZS 1708: 2014 / EAS 50:2000** Canned pineapple – Specification
41. **TZS 1709: 2014/EAS 174:2000** Black currant concentrate (preserved exclusively by physical means) – Specification
42. **TZS 1710: 2014/ EAS 332:2002** Fresh capsicum – Specification

STANDARDS FLOATED FOR STAKEHOLDERS' COMMENTS

During the period July — December 2014, the following standards were circulated for stakeholders' comments:

1. **TBS/AFDC 18 (3745) P3 (Rev. TZS 728:2009)** – Black tea – Blended – Specification.
2. **TBS/AFDC 18 (3744) P3 (Rev. TZS 352:2009)** Black tea – Specification.
3. **TBS/AFDC 18 (3780) P3** Green Tea – Specification.
4. **TBS/AFDC 18 (4039) P3 (REV. TZS 373:1988)** Production, processing and handling of black tea - Code of practice.
5. **CDC 3 (4132) P3** Skin powder – specification.
6. **CDC 3 (4134) P3** Deodorants and Antiperspirants – Specification.
7. **CD/K/510:2014** - Fresh dried *Rastrineobola argentea* (Omena/Dagaa/mukene) — Specification.
8. **CD/K/513-1:2014** - Fresh and frozen fin fish — Part 1: Whole fish — Specification.
9. **CD/K/516:2014** - Dried and dry-salted fish — Specification.
10. **CD/K/527:2014** - Transport of live fish seeds for inland pisciculture purposes — Code of practice.
11. **CD/K/535:2014** - Quick frozen fish sticks (fish fingers), fish portions and fish fillets — Breaded or in batter — Specification.
12. **CD/K/538:2014** - Quick frozen fish fillets — General specification.
13. **CD/K/578:2014** - Fish industry — Operational cleanliness and layout of market — Guidelines.
14. **CD/T/115:2014** - Code of practice for processing and handling of dried fish and fishery products.
15. **CD/T/116:2014** - Code of practice for processing and handling of salted fish and fishery products
16. **AFDC 18(4292)P1 (ISO 6079:1990)** Instant tea in solid form – Specification
17. **AFDC 18(4291)P1 (ISO 10727:2002)** Tea and instant tea in solid form — Determination of caffeine content — Method using high-performance liquid chromatography
18. **AFDC 18(4294)P1 (ISO 7514: 1990)** Instant tea in solid form - Determination of total ash
19. **AFDC 18(4306)P1 (ISO 6770:1982)** Instant tea - Determination of free-flow and compacted bulk densities
20. **AFDC 18(4313)P1 (ISO 7513:1990)** Instant tea in solid form - Determination of moisture content (loss in mass at 103 0C)
21. **AFDC 18(4314)P1 (ISO 11286:2004)** Tea — Classification of grades by particle size analysis
22. **AFDC 18(4316)P1 (ISO 1572:1980)** Tea - Preparation of ground Sample of known dry matter content
23. **AFDC 18(4302)P1 (ISO 6078-1982) (Rev TZS 350:2009)** Black tea – Vocabulary
24. **AFDC 18(4293)P1 (ISO 9768:1994)(Rev TZS 1161:2009)** Tea - Determination of water extractAFDC 18(4295)P1 (ISO 1577: 1987) (Rev TZS 1164:2009) Tea - Determination of acid-insoluble ash
25. **AFDC 18(4297)P1 (ISO 11287:2011)** Green tea — Definition and basic requirements
26. **AFDC 18(4298)P1 (ISO 14502-1:2005)** Determination of substances characteristic of green and black tea — Part 1: Content of total polyphenols in tea — Colorimetric method using Folin- Ciocalteu reagent
27. **AFDC 18(4299)P1 (ISO/TR 12591:2013)** White tea — Definition
28. **AFDC 18(4300)P1 (ISO 9884-I:1994)** Tea sacks - Specification - Part 1: Reference sack for palletized and containerized transport of tea
29. **AFDC 18(4301)P1 (ISO 3103:1980) (Rev 349:2009)** Tea - Preparation of liquor for use in sensory tests
30. **AFDC 18(4304)P1(ISO 1573:1980) (Rev TZS 1167:2009)** Tea - Determination of loss in mass at 103 0C
31. **AFDC 18(4305)P1 (ISO 9884-2:1999)** Tea sacks — Specification — Part 2: Performance specification for sacks for palletized and containerized transport of tea
32. **AFDC 18(4307)P1 (ISO 1576: 1988) (Rev TZS 1163: 2009)** Tea - Determination of water-soluble ash and water-insoluble ash
33. **AFDC 18(4308)P1(ISO 1839:1980) (Rev TZS 351:2009)** Tea – Sampling
34. **AFDC 18(4309)P1 (ISO 1578:1975) (Rev TZS 1165:2009)** Tea - Determination of alkalinity of water-soluble ash

35. **AFDC 18(4310)P1(ISO 1575:1987) (Rev TZS 1162:2009)** Tea - Determination of total as
36. **AFDC 18(4311)P1(ISO 15598:1999) (Rev TZS 1166:2009)** Tea — Determination of crude fibre content
37. **AFDC 18(4312)P1 (ISO 14502-2:2005)** Determination of substances characteristic of green and black tea — Part 2: Content of catechins in green tea — Method using high-performance liquid chromatography
38. **AFDC 18(4315)P1 (Rev TZS 728:2009)** Black tea – Blended – Specification
39. **AFDC 18(4296)P1 (Rev TZS 352:2009)** Black tea – Specification
40. **AFDC 19(4290)** P1 Code of hygienic practice for groundnuts (peanuts)
41. **AFDC 04(4287)** P1 Rev TZS 51:2010 Edible sesame seed oil – specification
42. **AFDC 04(4288)** P1 Rev TZS 559: 2010 Palm olein – specification
43. **AFDC 04(4289)** P1 Rev TZS 560:2010 Palm stearin – specification
44. **BS /AFDC 23 (4317)** P1 –Histamine determination in fish was registered
45. **TBS/ AFDC 7(4320)**P1 Spices and condiments- Terminology
46. **TBS/AFDC 7(4321)**P1 Spices and condiments- Chillies and capsicum whole and ground Specification
47. **TBS/AFDC 7(4322)**P1 Turmeric whole and ground Specification
48. **TBS/AFDC 7(4324)**P1 Vanilla Specification
49. **TBS/AFDC 7(4325)**P1 Coriander Specification
50. **TBS/AFDC 7(4326)**P1 Dehydrated Garlic Specification
51. **TBS/AFDC 7(4327)**P1 Paprika Specification
52. **TBS/AFDC 7(4323)**P1 Code of hygienic practices for Spices and condiment
53. **TBS/ AFDC 26(4337)**P1 Fresh Pineapple Specification
54. **TBS/ AFDC 26(4338)**P1 Fresh tomatoes Specification
55. **TBS/ AFDC 26(4339)**P1 Fresh mangoes Specification
56. **TBS/AFDC 26(4341)**P1 Fresh cabbage Specification
57. **TBS/AFDC 26 (4342)**P1 Fresh banana Specification
58. **TBS/ AFDC 26(4333)**P1 Citrus fruits Specification
59. **TBS/AFDC 26(4340)**P1 Avocados Specification
60. **TBS/AFDC 26(4344)**P1 Onion Specification
61. **TBS/AFDC 26(4343)**P1 Carrots Specification
62. **TBS/ AFDC 12(4328)**P1 Mango juice Specification
63. **TBS/ AFDC12(4332)**p1 Pineapple juice Specification
64. **TBS/ AFDC12(4330)**P1 Passion juice Specification
65. **TBS/AFDC12(4331)**P1 orange juice Specification
66. **TBS/AFDC12(4334)**P1 dried mangoes Specification
67. **TBS/AFDC 12(4335)**P1 Amaranth flour Specification
68. **TBS/AFDC 12(4336)**P1 Code of hygienic practices for processed fruit and vegetable products
69. **TBS/AFDC 12(4329)**P1 Pickles Specification
70. **TBS/AFDC 26(4343)**P1 Carrots Specification
71. **TBS/ AFDC 7(4355)** P1 Test methods for Vanilla (ISO 5565-2:1999)
72. **TBS/ AFDC 7(4356)** P1 Spices and condiments - Determination of cold water soluble extract. ISO 941: 1980 (last reviewed 201
73. **TBS/ AFDC 7(4357)** P1 Dehydrated garlic - Determination of volatile organic sulphur compounds. (ISO 5567)
74. **AFDC 26(4374)**P1 Fresh Garlic Specification
75. **AFDC 12(4375)**P1 Lemon Juice Specification
76. **AFDC 26(4373)**P1 Code of hygienic practice for ready to eat fresh precut fruits and vegetable
77. **AFDC 26(4369)**P1 Code of hygienic practices for production of melons
78. **AFDC 26(4370)**P1 Code of hygienic practices for production of berries
79. **AFDC (26(4371)**P1 Code of hygienic practices for production of fresh leafy vegetables
80. **AFDC (26(4372)**P1 Code of hygienic practices for sprout production
81. **CDC3 (4262)** P1 Chemically pure (CP) glycerine – Specification
82. **CDC3 (4263)** P1 Methods of sampling and test for crude and refined glycerine Part 1: Samples and test methods – General
83. **CDC 3(4264)** P1, Methods of sampling and test for crude and refined glycerine Part 2: Methods of sampling

84. **CDC 3(4265)** P1, Methods of sampling and test for crude and refined glycerine Part 3: Determination of glycerol content
85. **CDC 3(4266)** P1, Methods of sampling and test for crude and refined glycerine PART 4: Determination of density and relative density
86. **CDC 3(4267)** P1, Methods of sampling and test for crude and refined glycerine Part 5: Determination of alkalinity and acidity - Volumetric method.
87. **CDC 3(4268)** P1, Methods of sampling and test for crude and refined glycerine Part 6: Determination of ash - Gravimetric method
88. **CDC 3(4269)** P1, Methods of sampling and test for crude and refined glycerine Part 7: Determination of sulphated ash gravimetric method CDC 3(4270) P1, Methods of sampling and test for crude and refined glycerine Part 8: Determination of water content – Karl fisher method
89. **CDC 3(4271)** P1, Methods of sampling and test for crude and refined glycerine Part 9: Calculation of Matter Organic Non Glycerol (MONG)
90. **CDC 3(4272)** P1, Methods of sampling and test for crude and refined glycerine Part 10: Determination of arsenic content: silver diethyldithiocarbamate method
91. **CDC 3(4273)** P1, Methods of sampling and test for crude and refined glycerine Part 11: Determination of propane-1,3-diol content - Gas chromatographic
92. **CDC 3(4274)** P1, Methods of sampling and test for crude and refined glycerine Part 12: Determination of chloride content
93. **CDC 3(4276)** P1 Methods of sampling and test for crude and refined glycerine Part 14 - Limit test for organic chloride
94. **CDC 3(4277)** P1, Methods of sampling and test for crude and refined glycerine Part 15: Determination of heavy metals content
95. **CDC 3(4278)** P1, Methods of sampling and test for crude and refined glycerine – Part 16: Determination of iron content
96. **CDC 3(4279)** P1, Methods of sampling and test for crude and refined glycerine – Part 17: Limit test for lead
97. **CDC3 (4280)** P1 Methods of sampling and test for crude and refined glycerine – Part 18: Detection of sugar
98. **CDC3 (4281)** P1 Methods of sampling and test for crude and refined glycerine – Part 19: Assessment of odour
99. **CDC 3(4282)** P1, Methods of sampling and test for crude and refined glycerine – Part 20: Test for reducing substances
100. **CDC 3(4283)** P1, Methods of sampling and test for

crude and refined glycerine – Part 21: Determination of saponification equivalent

NEW PROJECTS INITIATED

During the period July — December 2014, the following projects were initiated:

1. **MEDC 2(4217)** P1 - Gas cylinders – refillable welded steel cylinders for liquefied petroleum gas (LPG) – Periodic inspection and testing.
2. **MEDC 2(4216)** P1 - Gas cylinders – refillable welded steel cylinders for liquefied petroleum gas (LPG) – Procedures for checking before, during and after filling.
3. **MEDC 2(4254)** P1 – Steel for the reinforcement of concrete - Part 1- Plain Bars (ISO 6935 – 1:2007).
4. **MEDC 2 (4255)** P1 - Steel for the reinforcement of concrete - Part 2: Ribbed bars (ISO 6935 – 2:2007).
5. **MEDC 2(4256)** P1 - Steel for the reinforcement of concrete - Part 3: Welded fabric (ISO 6935 – 2:2007).
6. **MEDC 2 (4253)** P1 - Steel tubes - Mild steel tubes and sockets screwed – Specification (Rev. TZS 152: 1982).
7. **CDC2 (4234)** P1 Household fabric Softeners- Specification,
8. **CDC2 (4235)** P1 Power Sanitizers – Specification
9. **CDC2 (4236)** P1 Heavy duty alkaline detergents for cleaning-in -place in food and beverage industry – Specification;
10. **CDC2 (4237)** P1 Acid detergents for cleaning-in -place in food and beverage industry Specification
11. **CDC6 (4241)** P1, Physical test methods (Rev. of EAS 15-1:2010).
12. **CDC 6 (4242)** P1, biological and microbiological test methods (Rev.) of EAS 15-2:2010).
13. **CDC6 (4243)** P1, Determination of metal contaminants (Rev. of EAS 15-3: 2010).
14. **CDC6 (4244)** P1 Determination of salts, cation and anions (Rev. of EAS15-4: 2010).
15. **CDC6 (4245)** P1 Determination of organic compounds and radioactivity (Rev. of EAS15- 5: 2010).
16. **AFDC 18(4292)** P1 (ISO 6079:1990) Instant tea in solid form – Specification
17. **AFDC 18(4291)** P1 (ISO 10727:2002) Tea and instant tea in solid form — Determination of caffeine content — Method using high-performance liquid chromatography

18. **AFDC 18(4294)P1 (ISO 7514: 1990)** Instant tea in solid form - Determination of total ash
19. **AFDC 18(4306)P1 (ISO 6770:1982)** Instant tea - Determination of free-flow and compacted bulk densities
20. **AFDC 18(4313)P1 (ISO 7513:1990)** Instant tea in solid form - Determination of moisture content (loss in mass at 103 OC)
21. **AFDC 18(4314)P1 (ISO 11286:2004)** Tea — Classification of grades by particle size analysis
22. **AFDC 18(4316)P1 (ISO 1572:1980)** Tea - Preparation of ground Sample of known dry matter content
23. **AFDC 18(4302)P1 (ISO 6078-1982) (Rev TZS 350:2009)** Black tea – Vocabulary/EAS 45:2000 Tea trade — Glossary of terms
24. **AFDC 24(4349)P1** Green coffee – Determination of proportion of insects – damaged beans (ISO 6667:1985) Rev. TZS 1153:2009
25. **AFDC 24 (4348)P1** Green coffee – Preparation of samples for use in sensory analysis (ISO 6668:2008) Rev. TZS1151:2009
26. **TDC3 (4260)p1** Textile-Floor covering-Tufted Carpets Specification
27. **TDC3 (4261)p1** Textile-Specification for School Bags
28. **TDC3 (4284)p1** Textiles - Woven, Knitted, or Flocked Bedspread Fabrics Specification.
29. **TDC3 (4285)p1** Textiles – Woven and knitted sheeting products Specification.
30. **TDC3 (4286)p1** Textiles – Woven and Warp knitted Quilt fabrics – Specification
31. **TDC3 (4362)p1** Textiles – Umbrella fabric - specification. Part 1; Cotton fabric
32. **TDC3 (4362)p1** Textiles - Umbrella fabric - specification. Part 2; Manmade fibre fabric
33. **TDC3 (4362)p1** Textiles – Umbrella fabric - specification. Part 3; silk fabric
34. **TDC3 (4363)p1** Textiles – Woven bags(100% sisal) for clean coffee beans- specification.
35. **TDC11 (4358)p1** Leather – used footwear-Inspection and acceptance criteria code of practice.
36. **TDC11 (4359)p1** Leather – Preservation of raw hides and skins-code of practice. Part 1; Stack salting.
37. **TDC11 (4360)p1** Leather – Preservation of raw hides and skins-code of practice. Part 2; Air-drying.
38. **TDC11 (4361)p1** Leather – Preservation of raw hides and skins-code of practice. Part 3; Picking.
39. **CD/K/11:2014**, Toilet - Specification
40. **CD/K/12:2014**, Facial tissue paper — Specification
41. **CD/K/13:2014**, Glossary of packaging terms — Part 2; Paper and board packaging.
42. **CD/K/14:2014**, Paper bags— Specification
43. **CD/K/14:2014**, Wrapping paper — Specification
44. **CD/K/14:2014**, Multi-wall paper sacks for packaging of cement — Specification
45. **CD/K/15:2014**, Paper and board intended to come into contact with foodstuffs - Determination of the fastness of fluorescent whitened paper and board.
46. **CD/K/16:2014**, Paper serviettes/napkins — Specification
47. **CD/K/17:2014**, Base paper for carbon paper — Specification
48. **CD/K/18:2014**, Specification for base paper for waxed bread wrap
49. **CD/K/19:2014**, Specification for carbon paper
50. **CD/K/20:2014**, Cut-size papers — Specification — Part 1, General-purpose paper
51. **CD/K/21:2014**, Specification for cut-size papers; Part 2. Photocopy paper
52. **CD/K/22:2014**, Specification for paper boards for packaging
53. **CD/K/24:2014**, Specification for waxed paper for bread wrap
54. **CD/K/25:2014**, Specification for sack Kraft paper; Part 1. Natural and extensible sack Kraft paper
55. **CD-ARS 462: 2014** Sorghum grains – Specification
56. **CD-ARS 463: 2014** Pearl millet grains – Specification
57. **CD-ARS 857: 2014** Finger millet grains – Specification
58. **CD-ARS 468: 2014** Sorghum flour – Specification
59. **CD-ARS 469:2014** Millet flour – Specification
60. **DEAS 826: 2014** - Fresh dried Rastrineobolaargentea (Omena/Dagaa/mukene) Specification.

61. **DEAS 827:2014** - Fresh and frozen fin fish — Part 1: Whole fish — Specification.
62. **DEAS 828:2014** - Dried and dry-salted fish — Specification.
63. **DEAS 830:2014** - Quick frozen fish sticks (fish fingers), fish portions and fish fillets Breaded or in batter — Specification.
64. **DEAS 831:2014** - Quick frozen fish fillets — General specification
65. **DEAS 55:2014** Compounded pig feed specification.
66. **CD/U/02:2014** Compounded poultry feed specification.
67. **CD/U/01:2014** Cattle feed specification.
68. **AFDC 24(4347) Green and roasted coffee** – Determination of free – flow bulk density of whole beans(Routine method) (ISO 6669:1995) Rev.1149:2009
69. **TBS/AFDC 23 (4083)** P1- Fish sausage – Specification
70. **TBS /AFDC 23 (4058)** P1- Smoked fish – Specification
71. **TBS/AFDC 23 (4007)** P1- Quick frozen prawns and shrimps –Specification
72. **TBS/AFDC 23 (4317)** P1– Histamine determination in fish
73. **TBS/AFDC 23 (4317)** P1– Histamine determination in fish
74. **TBS/AFDC 23 (3718)** P1 – Code of practice for handling and processing of shrimp or prawns
75. **TBS/ AFDC 7(4320)**P1 Spices and condiments- Terminology
76. **TBS/AFDC 7(4321)**P1 Spices and condiments- Chillies and capsicum whole and ground Specification
77. **TBS/AFDC 7(4322)**P1 Turmeric whole and ground – Specification
78. **TBS/AFDC 7(4324)**P1 Vanilla – Specification
79. **TBS/AFDC 7(4325)**P1 Coriander Specification
80. **TBS/AFDC 7(4326)**P1 Dehydrated Garlic –Specification
81. **TBS/AFDC 7(4327)**P1 Paprika – Specification
82. **TBS/AFDC 7(3777)**P1 Spices and condiments - Cinnamon Specification
83. **TBS/AFDC 7(2161)**P1 Cardamom Specification
84. **TBS/AFDC 7(4323)**P1 Code of hygienic practices for Spices and condiments
85. **TBS/ AFDC 7(4355)** P1 Test methods for Vanilla. (ISO 5565-2:199
86. **TBS/ AFDC 7(4356)** P1 Spices and condiments - Determination of cold water soluble extract. ISO 941: 1980 (last reviewed 2012)
87. **TBS/ AFDC 7(4357)** P1 Dehydrated garlic - Determination of volatile organic sulphur compounds. (ISO 5567)
88. **TBS/ AFDC 12(4328)**P1 Mango juice – Specification
89. **TBS/ AFDC12(4332)**P1 Pineapple juice – Specification
90. **TBS/ AFDC12(4330)**P1 Passion juice – Specification
91. **TBS/AFDC12(4331)**P1 Orange juice – Specification
92. **TBS/AFDC12** Lemon juice –Specification
93. **TBS/ AFDC12(4239)**P1 Ready to drink non-carbonated non-alcoholic beverage – Specification
94. **TBS/AFDC12(4334)**P1 Dried mangoes – Specification
95. **TBS/AFDC 12(4335)**P1 Amaranth flour – Specification
96. **TBS/AFDC 12(4336)**P1 Code of hygienic practices for fruit and vegetable products
97. **TBS/AFDC 12(4329)**P1 Pickles – Specification
98. **TBS/AFDC 12(4340)**P1 Chili sauce – Specification
99. **TBS/AFDC12(4334)**P1 dried banana – Specification
100. **TBS/ AFDC 26(4337)**P1 Fresh Pineapple –Specification
101. **TBS/ AFDC 26(4338)**P1 Fresh tomatoes – Specification
102. **TBS/ AFDC 26(4339)**P1 Fresh mangoes – Specification
103. **TBS/AFDC 26(4341)**P1 Fresh cabbage – Specification
104. **TBS/AFDC 26 (4342)**P1 Fresh banana – Specification
105. **TBS/ AFDC 26(4333)**P1 Citrus fruits– Specification
106. **TBS/AFDC 26(4342)**P1 Avocados – Specification
107. **TBS/AFDC 26(4060)**P1 Pawpaw – Specification
108. **TBS/AFDC 26(4336)**P1 Code of hygienic practices for fresh fruits and vegetables
109. **TBS/AFDC 26(4344)**P1 Onion – Specification
110. **TBS/AFDC 26(4343)**P1

Training

During the July – December 2014 period, 17 members of the TBS staff attended long courses training sponsored by TBS, while a good number of employees attended short courses sponsored by TBS and other donors

a) Long term training

S/N	NAME AND POSITION	COURSE	DURATION	SPONSOR	DATE OF COMMENCEMENT AND COMPLETION	PROGRESS	PLACE
1	Mr Johannes Maganga Standards Officer I	Masters in Engineering Management	2 years	TBS	October 2011 – September 2013	He has successfully completed coursework, he is proceeding with dissertation and has reported for duty	UDSM
2	Mr Gervas Kaisi Quality Assurance Officer I	Masters of Science in Environmental Technology and Management	2 years	TBS	October 2013 – October 2015	He has successfully completed coursework and is proceeding with dissertation	Ardhi University
3	Ms Zainabu Mziray Quality Assurance Officer II	Masters of Science in Food Science	2 years	TBS	October 2011 – September 2013	She has successfully completed dissertation and reported for duty while waiting for the final results	SUA
4	Ms. Happy Brown Quality Assurance Officer II	Masters of Science in Food Science	2 years	TBS	October 2012 – October 2014	She has successfully completed her studies	SUA
5	Mr Feruzi Ibrahim Principal Laboratory Technician I	Bachelor of Medical Laboratory Science- Microbiology/ Immunology	3 years	TBS	01st October 2012 – 01st October 2015	He has successfully completed second year and is proceeding with the third year	MUHAS



ACTIVITIES REPORT

S/N	NAME AND POSITION	COURSE	DURATION	SPONSOR	DATE OF COMMENCEMENT AND COMPLETION	PROGRESS	PLACE
6	Mr Ridhiwani Ramadhani Senior Quality Assurance Officer I	Masters of Science in Food Science	2 years	TBS	October 2012 – October 2014	He has successfully completed coursework, is proceeding with dissertation and has reported for duty while waiting for the final results	SUA
7	Mr Jabir Abdi Senior Systems Administrator II	Masters of Science in Information Technology and Management	2 years	TBS	October 2012 – October 2014	He has successfully completed first year and he is proceeding with the second year	IFM
8	Ms Rehema Nyamoga Quality Assurance Officer II	Masters of Science in Chemistry	2 year	TBS	October 2012 – October 2014	Her dissertation has been submitted for examination. Meanwhile, she has reported for duty while waiting for the final results	UDSM
9	Ms Innocencia Mtetewaunga Personal Secretary I	Diploma in Secretarial Studies	2 years	TBS	January 2013 – December 2014	She has successfully completed first year and is proceeding with the second year	TPSC
10	Mr Charles Challe Senior Procurement Officer I	Masters of Science Procurement & Supply Chain Management	2 years	TBS	October 2013 - October 2015	He has successfully completed coursework and is proceeding with dissertation	Mzumbe

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S/N	NAME AND POSITION	COURSE	DURATION	SPONSOR	DATE OF COMMENCEMENT AND COMPLETION	PROGRESS	PLACE
11	Mr Hamis Sudi Senior Standards Officer I	Masters of Science Mathematical Modeling	2 years	TBS	October 2013 – October 2015	He has successfully completed coursework and is proceeding with dissertation	UDSM
12	Mr Ingram Kisamo Senior Metrologist I	Masters of Science Mathematical Modeling	2 years	TBS	October 2013 – October 2015		UDSM
13	Mr Joseph James Senior Metrologist I	Masters of Science Mathematical Modeling	2 years	TBS	October 2013 – October 2015	He has successfully completed coursework and is proceeding with dissertation	UDSM
14	Mr Selemani Abdallah Senior Office Assistant	Diploma in Procurement and supply Management	2 years	TBS	August 2013 – August 2015	He has successfully completed first year and is proceeding with the second year	CBE
15	Mr Yona Africa Standards Officer I	Masters of Science in Production Engineering	2 years	TBS	October 2013 – October 2015	He has successfully completed coursework and is proceeding with dissertation	UDSM
16	Ms Evelyn Kahatano Personal Secretary I	Diploma in Secretarial Studies	2 years	TBS	July 2013 – June 2015	She has successfully completed first year and is proceeding with the second year	TPSC

S/N	NAME AND POSITION	COURSE	DURATION	SPONSOR	DATE OF COMMENCEMENT AND COMPLETION	PROGRESS	PLACE
17	Ms Amina Yasini Quality Assurance Officer II	Masters in Public Health and Food Safety	2 years	TBS	October 2014 – October 2016	She has started first semester, no progress report received yet	SUA
18	Ms Salama Shekilango Quality Assurance Officer II	Masters in Public Health and Food Safety	2 years	TBS	October 2014 – October 2016	She has started first semester, no progress report received yet	SUA
19	Ms Flora Luvanda Quality Assurance Officer II	Masters in Public Health and Food Safety	2 years	TBS	October 2014 – October 2016	She has started first semester, no progress report received yet	SUA
20	Ms Victoria Stephen Quality Assurance Officer II	Masters of Science in Chemistry	2 years	TBS	October 2014 – October 2016	She has started first semester, no progress report received yet	UDSM
21	Ms Justina Ngalla	Diploma in Secretarial Studies	2 years	TBS	July 2014 – July 2015	She has started first semester, no progress report received yet	TPSC

b) Short-Term Training

During the period under review, members of TBS staff attended short course training as follows:

1. Training on Risk Assessment

Twenty eight (28) members of staff attended a two-day training on risk assessment in Dar es Salaam, from 8th to 9th July 2014. The training was sponsored by TBS.

2. Workshop on Retirement Planning

Seven (7) members of staff attended a five-day training on retirement planning in Dar es Salaam, from 15th to 19th September 2014. The training was sponsored by the bureau.

3. Induction Training for Inspection Technician

Eighteen (18) members of staff attended a one-day induction training for inspection technicians in Dar es Salaam, on 25th July 2014. The training was sponsored by the Bureau.

4. Workshop on Organizational and Methodological Procedures

Twenty five (25) members of staff attended a two-day training on Organizational and Methodological Procedures in Kibaha, from 25th to 26th August 2014. The training was sponsored by TBS.

5. Training of Trainers on Open Performance Review and Appraisal System

Forty one (41) members of staff attended a five-day training on training of trainers on Open Performance Review and Appraisal System in Dar es Salaam, from 8th to 12th September and on 6th to 10th October 2014. The training was sponsored by TBS.

6. Induction Training for TCs, DCs Chairpersons and Secretaries

Twenty six (26) members of staff attended a two-day induction training for TCs, DCs Chairpersons and Secretaries in Dar es Salaam, from 15th to 16th September 2014. The training was sponsored by TBS.

7. Refresher Course for Laboratory Assistants

Six (6) members of staff attended a five-day refresher course for laboratory assistants in Bagamoyo, from 6th to 10th October 2014. The training was sponsored by TBS.

8. Other training attended

Other short training opportunities attended during the period of July – December 2014 are as shown in the following table.

S/N	Name	Course	Duration	Sponsor	Date	Place
1.	Ms Tumaini Mtitu Director of Quality Management	Workshop on Leadership and change management	2 weeks	TBS	4th – 16th August 2014	India
2.	Ms Agnes Mneney Director of Standards Development	Workshop on Leadership and change management	2 weeks	TBS	4th – 16th August 2014	India
3.	Ms Jane Maswe Personal Secretary I	Training on Customer Care and Communication Skills	5 days	TBS	11th – 15th August 2014	Morogoro
4.	Ms Tumaini Mtitu Director of Quality Management	Workshop on Power Quality Management	3 days	TBS	14 – 16th July 2014	Dar es Salaam
5.	Ms Faidha Nyenzi Records Management Assistant I	Mafunzo ya uboreshaji wa utendaji wa kazi kwa wasaidizi wa wakuu wa kazi katika taasisi mbalimbali	1 week	TBS	18th – 22nd August 2014	Mbeya

6.	Ms Imani Teemba Records Management Assistant I	Mafunzo ya uboreshaji wa utendaji wa kazi kwa wasaidizi wa wakuu wa kazi katika taasisi mbalimbali	1 week	TBS	18th – 22nd August 2014	Mbeya
7.	Ms Dorice Mwakibete Senior Human Resource Officer II	Workshop on Advanced Transformational Leadership for Women's Empowerment	1 week	TBS	4th – 8th August 2014	Malaysia
8.	Ms Agnes Kiwelu Senior Maintenance Engineer I	Workshop on Advanced Transformational Leadership for Women's Empowerment	1 week	TBS	4th – 8th August 2014	Malaysia
9.	Ms Irene Lyamchai Receptionist I	Training on Advanced Records Management and Customer Care	5 days	TBS	15th – 19th September 2014	Mbeya
10.	Ms Zilpa Shimiye Senior Receptionist	Training on Advanced Records Management and Customer Care	5 days	TBS	15th – 19th September 2014	Mbeya
11.	Mr Isaya James Driver II	Kozi ya udereva kwa maana ya kuongeza ufanisi, utii wa sheria na usalama barabarani	5 days	TBS	15th – 19th September 2014	Mbeya
12.	Mr Emmanuel Mwanjela Driver	Kozi ya udereva kwa maana ya kuongeza ufanisi, utii wa sheria na usalama barabarani	5 days	TBS	15th – 19th September 2014	Mbeya
13.	Mr. Silvanus Edwin Driver II	Drivers course	5 days	TBS	17th – 21st November 2014.	Mbeya
14.	Mr. Benjamin Sebius Driver II	Drivers course	5 days	TBS	17th – 21st November 2014	Mbeya
15.	Mr. Antony Paul Record Management Assistant II	Advanced Record Management and customer care training	5 days	TBS	24th – 28th November 2014	Mbeya
16.	Mr. Ayubu Bakari Senior Office Assistant	Advanced Record Management and customer care training	5 days	TBS	24th – 28th November 2014	Mbeya

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17.	Ms. Mary Meela Principal Quality Assurance Officer I.	Awareness Training for the central corridor Transport Observatory Database.	1 day	TBS	6th – November 2014	Dar-es Salaam
18.	Mr. Mwalimu K. Mbega Senior Planning Officer I	Awareness Training for the central corridor Transport Observatory Database	1 day	TBS	6th – November 2014	Dar-es Salaam
19.	Mr. Peter Martin Quality Assurance Officer II	Condom Testing Training	4 days	fHI 360 & UNFPA	3rd – 6th November 2014	TBS
20.	Ms. Mary Mlembe - Senior Laboratory Technician I	Condom Testing Training	4 days	fHI 360 & UNFPA	3rd – 6th November 2014	TBS
21.	Mr. Hosseana Mwakatumbula Senior Quality Assurance Officer I	Condom Testing Training	4 days	fHI 360 & UNFPA	3rd – 6th November 2014	TBS
22.	Mr. Ibrahim Salanga Principal Laboratory Technician II	Condom Testing Training	4 days	fHI 360 & UNFPA	3rd – 6th November 2014	TBS
23.	Mr. Laurent Nkundwa Principal Laboratory Assistant	Condom Testing Training	4 days	fHI 360 & UNFPA	3rd – 6th November 2014	TBS
24.	Ms. Matilda Benito Kasanga Documentation & ICT Manager	Leadership & Change Management Programme	15 days	TBS	22nd – 6th December 2014	India
25.	Ms. Mariam Jumanne Kamando Principal Human Resource Officer	Leadership & Change Management Programme	15 days	TBS	22nd – 6th December 2014	India
26.	Mr. Abel Clement Mwakasonda Quality Assurance Officer	Training on Quality Infrastructure for Food Safety	27 days	SIDA	16th November - 12th December 2014	Sweden
27.	Ms. Agnes Mneney Director of Testing & Calibration	Workshop on the clean fuels and vehicles regulatory toolkit	1 day	PCFV	18th September 2014	Arusha

28.	Ms. Kezia M. Moses Chief Quality Assurance Officer	Workshop on the clean fuels and vehicles regulatory toolkit	1 day	PCFV	18th September 2014	Arusha
29.	Mr. Joseph Emmanuel Ismail Standards Officer II	Clean Combustion Technology and its application for Rural Households	25 days	Ministry of Education of the People Republic of China	23th October – 16th November 2014	China
30.	Mr. Dunstan Kalugira Principal Quality Assurance Officer I	Quality infrastructure development	30 days	World Trade	7th November – 6th Dec	Sweden
31.	Mr. Stella Mroso Quality Assurance Officer I	Aflatoxin Information Management System	5 days	TBS	15th – 19th November 2014	Arusha
32.	Mr. Habakuki Kalebo Quality Assurance Officer II	Aflatoxin Information Management System	5 days	TBS	15th – 19th November 2014	Arusha
33.	Ms. Salama Shekilango Quality Assurance Officer II	Aflatoxin Information Management System	5 days	TBS	15th – 19th November 2014	Arusha
34.	Ms. Abeli Mwakasonda Quality Assurance Officer I	Aflatoxin Information Management System	5 days	TBS	15th – 19th November 2014	Arusha
35.	Mr. Anectus Ndunguru Metrologist II	Electrical Metrology Training	1 week	TBS	3rd – 7th November 2014	South Africa
36.	Henry Massawe Standards Officer II	ISO/IEC 17025 Competence of Testing Laboratories and Calibration Laboratories	5 days	TBS	15th – 19th December 2014	Dar es Salaam
37.	Zuberi Juma Metrologist II	ISO/IEC 17025 Competence of Testing Laboratories and Calibration Laboratories	5 days	TBS	15th – 19th December 2014	Dar es Salaam
38.	Victor Panga Metrologist II	ISO/IEC 17025 Competence of Testing Laboratories and Calibration Laboratories	5 days	TBS	15th – 19th December 2014	Dar es Salaam

ACTIVITIES REPORT



39.	Emmanuel Charles Laboratory Technician II	ISO/IEC 17025 Competence of Testing Laboratories and Calibration Laboratories	5 days	TBS	15th – 19th December 2014	Dar es Salaam
40.	Issack James Laboratory Technician II	ISO/IEC 17025 Competence of Testing Laboratories and Calibration Laboratories	5 days	TBS	15th – 19th December 2014	Dar es Salaam
41.	Juma Msenya Maintenance Technician II	ISO/IEC 17025 Competence of Testing Laboratories and Calibration Laboratories	5 days	TBS	15th – 19th December 2014	Dar es Salaam
42.	Tatu Selemani Personal Secretary I	Annual International conference for Executive Secretaries and Administrative Professional.	5 days	TBS	08th – 12th December 2014	South Africa
43.	Neema Mgaya Personal Secretary I	Annual International conference for Executive Secretaries and Administrative Professional	5 days	TBS	08th – 12th December 2014	South Africa

PRODUCT SAMPLES TESTED AND CALIBRATIONS MADE

During the period under review a total of 6,596 requests for testing, calibration and packaging services were received and testing/calibration performed in the various laboratories, as per the following table:

S/N	Laboratory	Expected output	Actual	% Achievement
1	Building & Construction	790	828	105
2	Electrical	100	61	61
3	Mechanical	280	275	98
4	Chemistry	550	362	66
5	Food	1050	873	83
6	Textile	350	361	103
7	Packaging	40	54	135
8	Metrology	2600	3057	118
9	*Cotton	240	725	302
	TOTAL	6000	6596	110

RECRUITMENT

During July – December 2014, the following 40 young men and women joined the TBS workforce



ZUBERI RAMADHANI JUMA
METROLOGIST II.



BERNADETHA LEONARD NGAMBA
PERSONAL SECRETARY II



STANFORD FRANK MATEE
QUALITY ASSURANCE OFFICER II



HUSSEIN SAID NJIGANE
RECORD MANAGEMENT ASSISTANT II



OMARI HALIDI KING'OSO
DRIVER II



PHILEMON SEVERINO NUMVILE
RECORD MANAGEMENT ASSISTANT II



VICTOR ANDREW PANGA
METROLOGIST II



ABEL KALIST DALLEI
DRIVER II



SELEMANI ISACK ELIKUNDA
DRIVER II



RHODA SAIMON MHAHLIDZA
QUALITY ASSURANCE OFFICER II



DORIS ATUGONZA MCHWAMPAKA
QUALITY ASSURANCE OFFICER II



NEEMA JUMANNE MTEMVU
CORPORATE AND PUBLIC AFFAIRS OFFICER II



OMARY GERVASY KAOGO
DRIVER II



NYAKOREMA CHACHA RIOBA
QUALITY ASSURANCE OFFICER II



BANONA NYAKAHI WILLIAM
ASSISTANT INTERNAL AUDITOR II



OLIVER ONESMO MACHANGE
COMPUTER SYSTEM TECHNICIAN I.



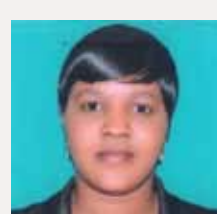
EDITA MEDARD TAIRO
HUMAN RESOURCE OFFICER II



VERONICA PATRICK
HUMAN RESOURCE OFFICER II



FRANK NGAIZA VICTOR
ACCOUNT TECHNICIAN II



BEATRICE SEMENI FELIX
PERSONAL SECRETARY II



EUNICE ROWLAND LEMA
LEGAL OFFICER II



ISSACK RAPHAEL JAMES
LABORATORY TECHNICIAN II



JUMA AMOS MSENYA
MAINTENANCE TECHNICIAN II



FRANK MUGISHA EMMANUEL
ASSISTANT ACCOUNTANT II



VICTOR SOLANUS MWANYIKA
ASSISTANT ACCOUNTANT II

STAFF MATTERS



**KAKURU MKAMA
CHIGANGA**
STANDARD OFFICER II



**DIOCLES KASASE
NTAMULYANGO**
QUALITY ASSURANCE
OFFICER II



**EMMANUEL CHARLES
SHILINDE**
LABORATORY TECHNICIAN II



**ARNOLD JACKSON
MWAKISOLE**
DRIVER II



MOSES WILLIAM MNGODO
ASSISTANT ACCOUNTANT II



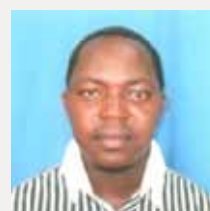
DAVID ERMENCE MTEI
EDITOR II



**EVARIST ELIFURAHA
MREMA**
QUALITY ASSURANCE
OFFICER II



PRINCESS ELIAS MPILI
QUALITY ASSURANCE
OFFICER II



**RAMADHAN ABDUL
HASSAN**
QUALITY ASSURANCE
OFFICER II



**ALOYCE ABDALLAH
NDUKA**
QUALITY ASSURANCE
OFFICER II



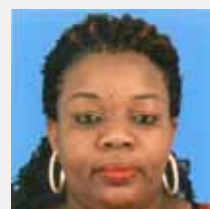
ALFRED IGNAS JULLU
DRIVER II



ISSA HAMADI IKUGA
LABORATORY ASSISTANT II



**CLAVERY ALPHONSE
CHAUSI**
LIBRARIAN II



**GLADNESS HERMAN
KASEKA**
SENIOR MARKETING
OFFICER



**EMMANUEL MARK
KIWANGO**
QUALITY ASSURANCE
OFFICER II

TWO CHIEF QUALITY ASSURANCE OFFICERS RETIRE

Two Chief Quality Assurance Officers namely Mr Dominic Mwakangale and Mrs Julitha Tibanyenda have retired from the public service.

Mr Mwakangale, who retired on 4th September 2014 after attaining the age of 60 years, was employed by Tanzania Bureau of Standards on 3rd November, 1981 as a Standards Officer (Textiles). He holds a Master of Science degree in Textile Engineering. Prior to joining TBS, Mr Mwakangale worked as a Planning Officer at D.O.D's office in Moshi Rural District and as Textile Technician at TEXCO.

During his time at TBS, Mr Mwakangale held various technical and duty positions and climbed the career cadre to reach the highest post of Chief Quality Assurance Officer. The posts he held include Head of Textile Laboratory, Head of Testing and Calibration Department and Director of Testing, Calibration and Packaging Services.

MR DOMINIC MWAKANGALE

Mr. Dominic Mwakangale was hard working, reliable, cooperative, and very knowledgeable in the area of Textiles, Testing, Calibration and Packaging. He worked with TBS for 33 years.

Mrs Tibanyenda retired on 28th November, 2014 after attaining the statutory retirement age of 60 years. She was employed by Tanzania Bureau of Standards on 1st December, 1981 as a Standards Officer II. She holds a Master of Science degree in International Trade.

MS JULITHA TIBANYENDA

Prior to joining TBS, Mrs Tibanyenda worked at Tanzania Investment Bank.

During her stay at the Bureau, Mrs Tibanyenda was promoted to the highest staff level of Chief Quality Assurance Officer and headed the Technical Assistance to Importers and Exporters Section for several years.

Mrs Tibanyenda was hard working and very knowledgeable in the areas of Quality Assurance and international trade. She worked with the Bureau for 33 years.



During the period July- December 2014, the TBS information centre received several international standards to add to its current stock. Among others, the following standards are of special interest

AGRICULTURE AND FOOD STANDARDS

- **ISO 5555:2014 AMENDMENT 1:** Animal and vegetable fats and oils sampling
- **ISO 12228-1: 2014** Determination of individual and total sterols contents- gas chromatographic method Part 1: Animal and vegetable fats and oils

CHEMICAL STANDARDS

- **ISO 2393:2014**(4thed) Rubber test mixers- preparation, mixing and vulcanization- equipment and procedures
- **ISO 2469: 2014** (5thed) Paper, board and pulps- measuring of diffuse radiance factor (diffuse reflectance factor)
- **ISO 2929:2014** (4thed) Rubber hoses and hose assemblies for bulk fuel delivery by truck- specification
- **ISO 3167:2014** Plastics- multipurpose test specimens
- **ISO 3302-1: 2014** (2nded) Rubber- tolerances for products – Part 1: Dimensional tolerances
- **ISO 4548-15:2014** Methods of test for full- flow lubricating oil filters for internal combustion engines Part 15: Vibration fatigue test for composite filter housings
- **ISO 5631-2:2014** (2nded).. Paper and board- Determination of colour by diffuse reflectance- Part2: outdoor daylight conditions (065/10°)
- **ISO 5631-3:2014** (2nded) Paper and board- Determination of colour by diffuse reflectance- Part 3: Indoor illumination conditions
- **ISO 5667-6:2014**(3rded) Water quality- sampling- Part 6: guidance on sampling of rivers and streams
- **ISO 6145-2:2014**(2nded) Gas analysis- preparation of calibration gas mixtures using dynamic methods- Part2: piston pumps
- **ISO 6808:2014** (2nded) Plastics hoses and hose assemblies for suction and low- pressure discharge of petroleum liquids- specification
- **ISO 8030:2014**(3rded) Rubber and plastics hoses- method of test for flammability

- **ISO 8330:2014** (3rded) Rubber and plastics hoses and hose assemblies- vocabulary
- **ISO 10350-1: 2014** (2nded) AMENDMENT 1 Plastics - acquisition and presentation of comparable single point data -Part 1: moulding materials
- **ISO 11357-4:2014** (2nded) Plastics- differential scanning calorimetry (DSC)- Part 4: determination of specific heat capacity
- **ISO 11358-1: 2014** Plastics- Thermogravimetry (TG) of polymers- Part 1: general principles
- **ISO 11358-2:2014** (2nded) Plastics- Thermogravimetry (TG) of polymers- Part 2: determination of activation energy
- **ISO 11403-1:2014**(3rded) Plastics- Acquisition and presentation of comparable multipoint data- Part 1: Mechanical properties
- **ISO 11403-3:2014**(2nded) Plastics- Acquisition and presentation of comparable multipoint data- Part 3: Environmental influences on properties
- **ISO 13095:2014** Surface chemical analysis-Atomic force microscopy Procedure for in situ characterization of AFM probe shank profile used for nanostructure measurement
- **ISO 14885:2014** Large yachts- Diesel engines for main propulsion and essential auxiliaries- safety requirements
- **ISO 15366-1: 2014** Nuclear fuel technology- chemical separation and purification of uranium and plutonium in nitric acid solutions for isotopic and isotopic dilution analysis by solvent extraction chromatography- Part 1: Samples containing plutonium in the microgram range and uranium in the milligram range
- **ISO 15366-2:2014** Nuclear fuel technology- chemical separation and purification of uranium and plutonium in nitric acid solutions for isotopic and isotopic dilution analysis by solvent extraction chromatography- Part 2: Samples containing plutonium and uranium in the nanogram range and below
- **ISO 17289:2014** Water quality- Determination of dissolved oxygen optical sensor method
- **ISO 17383:2014** Determination of the triacylglycerol composition of fats and oils- Determination by capillary gas chromatography
- **ISO 17801:2014** Plastics- Standards table for reference global solar spectral irradiance at sea level- Horizontal relative air mass 1

- **ISO 20712-3: 2014** (2nd ed.) water safety signs and beach safety flags- Part 3: Guidance for use
- **ISO 22854:2014** (2nd ed.) liquid petroleum products- Determination of hydrocarbon types and oxygenates in automotive- motor gasoline and in ethanol CE85) automotive fuel- Multidimensional gas chromatography method

ENVIRONMENTAL STANDARDS

- **ISO 14046:2014** Environmental management- water footprint Principles, requirements and guidelines

MANAGEMENT STANDARDS

- **ISO 10002:2014** (2nd ed.) Quality management- Customer satisfaction- Guidelines for complaints handling in organization

MECHANICAL STANDARDS

- **ISO 12614-1:2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 1: General requirements and definitions
- **ISO 12614-2:2014** Road vehicles~ Liquefied natural gas (LNG) fuel System components- Part 2: Performance and general test methods
- **ISO 12614-3:2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 3: Check valve
- **ISO 12614-4:2014** Road vehicles - Liquefied natural gas (LNG) fuel system components- Part4: Manual valve
- **ISO 12614-5:2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 5: Tank pressure
- **ISO 12614-6: 2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 6: Pressure regulator
- **ISO 12614-8: 2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 8: Excess flow valve
- **ISO 12614-9:2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 9: Gas- tight housing and ventilation hose
- **ISO 12614-10:2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 10: Rigid fuel line in stainless steel
- **ISO 12614-11: 2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 11: Fittings

- **ISO 12614-12:2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 12: Rigid fuel line in copper and its alloys
- **ISO 12614-13:2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 13: Tank pressure control regulator
- **ISO 12614-14:2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 14: Differential pressure fuel content gauge
- **ISO 12614-15:2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 15: Capacitance fuel content gauge
- **ISO 12614-16:2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 16: Heat exchanger-vaporizer
- **ISO 12614-18:2014** Road vehicles- Liquefied natural gas (LNG) fuel system components- Part 18: Gas temperature sensor
- **ISO 11607-1:2014 AMENDMENT 1** Packaging for terminally sterilized medical devices- Part 1: Requirements for materials, sterile barrier systems and packaging systems
- **ISO 11607-1:2014 AMENDMENT 1** Packaging for terminally sterilized medical devices- Part 1: Requirements for materials, sterile barrier systems and packaging systems

TEXTILE STANDARDS

- **ISO 4074:2014** Natural rubber latex male condoms - requirements and test methods
- **ISO 13629-2:2014** Textile- Determination of antifungal activity of textile products- Part 2: Plate count method
- **ISO 16373-2:2014** Textiles- Dyestuff- Part 2: General method for the determination of extractable~ dyestuff including allergenic and carcinogenic dyestuffs (method using pyridine- water)
- **ISO 16373-3:2014** Textiles- Dyestuff- Part 3: Method for determination of certain carcinogenic dyestuffs (method using trieth mine/ methanol)

Sun, sand and standards: A new international standard for beaches



Whether it be the soft white sand or the call of the sea, beaches have an amazing ability to attract people from far and wide. Now they are even easier to keep beautiful with the publication of the first International Standard for beaches.

Not just for sunseeking tourists, beaches are an important part of our ecology, and keeping them clean, safe and sustainable is as essential for people as it is for our planet. ISO's new standard for beaches, *ISO 13009 Beaches. Tourism and related services - Requirements and recommendations for beach operation*, provides robust internationally agreed guidelines for operators to make better decisions about managing their beaches.

In addition to general beach management, ISO 13009:2015 includes everything from beach and water safety, to cleaning, infrastructure, waste disposal, planning and promotion.

The standard is a useful tool to assist travel agents, hotel owners, property developers and local governments better manage their beaches. In addition, compliance with ISO 13009:2015 is also a valuable marketing tool to attract public funding for further improvements as well as investors and visitors that will aid commercial services in the area.

It also helps to ensure that entertainment activities in the area are conducted within a socially responsible framework, and provides guidance on safety and hygiene for visitors.

Keeping data safe - what's your back up?



Securely storing and protecting data requires a whole lot more than a simple back up. A new International standard for data storage security ensures your valuable information stays in safe hands.

An organization's data is often its most valuable asset, and keeping it stored safely and effectively is increasingly a commercial and legal imperative. However the process of managing it can be complex, covering not only how it is stored but how to access it securely and communicate it across a wide range of media and devices.

ISO/IEC 27040:2015 Information technology - Security techniques - Storage security provides detailed technical guidance on how to effectively manage all aspects of data storage security, from the planning and design to the implementation and documentation.

It includes guidance on mitigating risks of data breaches and corruption and takes into account new technologies and the complexities of connectivity and supports the requirements of

an Information Security Management System according to ISO/IEC 27001:2013, Information technology - Security techniques -- Information security management systems -- Requirements.

ISO/IEC 27040:2015 aims to help draw attention to risks; to assist organizations in better securing their data when stored; and to provide a basis for auditing, designing and reviewing storage security controls.

How to get outsourcing right



With new companies like Uber and AirBnb changing the rules of the game for those with more established "traditional" business models, many are turning to outsourcing as one way to diversify, specialize, cut costs and become more competitive in a modern business environment. Getting this move right can be challenging, but on this video interview Peter Bannink, Project Editor of ISO 37500, shares with us how a new ISO standard on outsourcing can help organizations do just that.

Outsourcing, the transfer of work to an external company, is nothing new. But recent years have seen an exponential increase in this practice and this is expected to continue.

Behind this pattern are companies choosing to focus on their core business areas and reduce costs. Although the premise of outsourcing can be beneficial, the introduction of an external third party can also backfire and result in lower quality, more complicated interactions, slower turnaround times and unhappy customers and employees. But new guidance can help organizations reap the benefits and avoid common pitfalls.

According to Bannink, ISO 37500, which focuses on business relations, especially business-to-business transactions, will help organizations put in place an adaptive business model to enable successful outsourcing interactions.

Outsourcing exchanges often take place across national borders, which gives more flexibility and choice to companies, but also creates barriers when it comes to terminology, best practices and understanding. ISO 37500 puts everyone on the same page by offering a common language and framework, saving time and improving business relations.

"The standard is about joint decision making, joint delivery of services, and joint governance on outsourcing. It's ultimately about collaboration," explains Bannink in this interview. ISO 37500 is intended to be used by all parties in an outsourcing relationship but, according to Bannink, senior management will find it particularly useful. They can use the standard to identify risks related to outsourcing so they can be better prepared and put in place practices to ensure successful outsourcing transactions.

ISO 37500 is an overarching standard that can be used in all fields. For Bannink, the next step would be to focus on the particular needs of different industries.

(From ISO website, www.iso.org)

CERTIFICATION DATA



During the period under review, the Bureau continued to offer certification services under its Standards Mark, Tested Product and Batch Certification schemes, including the Pre-shipment Verification of Conformity to Standards (PVoC).

1. STANDARDS MARK LICENCES

S/N	CLIENT	PRODUCT(S)	LICENCE No.	STATUS
1	H & M AGROUP ENTERPRISES, MOSHI	ROSELLA ALCOHOLIC DRINK	1432	SME
2	H & M AGROUP ENTERPRISES, MOSHI	TOMATO SAUCE	1433	SME
3	WUXI TIANSHAN CEMENT CO LTD, CHINA	CEMENT	1434	NORMAL
4	ZHANGJIAGANG CONCH CEMENT CO LTD, CHINA	CEMENT	1435	NORMAL
5	LAKE CEMENT LTD, DSM	CEMENT	1436	NORMAL
6	FORTUNE CEMENT T LTD, DSM	CEMENT (42.5 N)	1437	NORMAL
7	AL JAWAHER LUBRICANTS & OIL INDUSTRIES LLC, DUBAI	ENGINE OIL	1438	NORMAL
8	AL JAWAHER LUBRICANTS & OIL INDUSTRIES LLC, DUBAI	BRAKE FLUID	1439	NORMAL
9	MAGUGU FARM CO LTD, MANYARA	MAIZE FLOUR	1440	SME
10	DABAGA VEGETABLE & FRIT CANNING CO LTD, IRINGA	PICKLES	1441	NORMAL
11	NUYA'S ESSENCE, DSM	TOILET SOAP	1442	SME
12	CHINA PETROCHEMICAL INTERNATIONAL CO LTD, CHINA	HYDARULIC OIL	1443	NORMAL
13	SHAPE IMPLEX INTERNATIONAL, U.A.E	ENGINE OIL	1444	NORMAL
14	A.A. PHARMACEUTICALS LTD, DSM	ROSELLA ALCOHOLIC DRINK	1445	SME
15	HAKIKA BREWERS LTD, DSM	FRUIT WINE	1446	NORMAL
16	MORA T LTD, DSM	PAPER NAPKINS	1447	NORMAL
17	POLYFOAM LTD, ARUSHA	VACUUM FLASKS	1448	NORMAL
18	ELIESH GROUP, MUSOMA	CHACHANDU	1449	SME
19	XL ENERGY MARKETING, POLAND	ENERGY DRINK	1450	NORMAL
20	MUHOJI GENERAL SUPPLIES LTD,MOROGORO	DRINKING WATER	1451	NORMAL
21	ARUSHA MOUNT MERU BAKERY LTD, ARUSHA	WHITE BREAD	1452	SME
22	BAHARI BAKERY LTD, DAR ES SALAAM	WHITE BREAD	1453	NORMAL
23	CHAI LEO LTD, DAR ES SALAAM	BLENDED BLACK TEA	1454	NORMAL
24	PRIMA HAIR CO LTD, DAR ES SALAAM	ARTIFICIAL HAIR	1455	NORMAL
25	LOTUS ESSENTIAL LTD, DAR ES SALAAM	COSTEMITC CREAMS, JELLIES FOR SKIN CARE	1456	NORMAL
26	TRUE COLUR LTD, MWANZA	HDPE PIPES	1457	NORMAL
27	COFFEE EXPORTERS LTD, ARUSHA	GROUND ROASTED COFFEE (PEABERRY SPECIALITY)	1458	NORMAL
28	CAPITOL BAKERY, DODOMA	WHITE BREAD	1459	NORMAL
29	CAPITOL BAKERY, DODOMA	WHITE BREAD	1460	NORMAL
30	BLUWAT T LTD, DSM	DRINKING WATER (SILVA)	1461	NORMAL
31	ELIESH GROUP, MUSOMA	GRAPE WINE	1462	SME
32	A ONE PRODUCTS & BOTTLERS LTD, DSM	ENERGY DRINK (MO BOMBA)	1463	NORMAL
33	MARIMOR'S OVEN, DSM	WHITE BREAD	1464	NORMAL

34	BAKE HOUSE, DODOMA	WHITE BREAD	1465	SME
35	TOPLO ENTERPRISES LTD, DSM	LAUNDRY SOAP (TOPLO)	1466	SME
36	REST AFRIC INVESTMENT LTD, MUSOMA	ROSELLA ALCOHOLIC DRINK	1467	SME
37	MY BAKERY, TANGA	WHITE BREAD	1468	NORMAL
38	MY BAKERY (T) LTD, DSM	WHITE BREAD	1469	SME
39	BALAJI THERMOWARE (2009) LTD, DSM	HOT POTS	1470	NORMAL
40	CHINA PETROCHEMICAL INTERNATIONAL CO LTD, BEIJING CHINA	GEAR OIL	1471	NORMAL
41	CHINA PETROCHEMICAL INTERNATIONAL CO LTD, BEIJING CHINA	DIESEL ENGINE OIL	1472	SME
42	AKSA ORGAIC PRODUCTS, DSM	ORGANIC LIQUEUR (NECHA)	1473	SME
43	TREATS BAKERY C/O ICON INVESTMENT LTD, DSM	WHITE BREAD	1474	NORMAL
44	YUMMIES BAKERY, DSM	BISCUITS	1475	NORMAL
45	B & G MILLS, DSM	SUNFLOWER SEED OIL	1476	SME
46	MWANZA GAZ LTD, MWANZA	GASEOUS OXYGEN (TECHINCAL GRADE)	1477	NORMAL
47	MWANZA GAZ LTD, MWANZA	GASEOUS NITROGEN (TECHNICAL GRADE)	1478	NORMAL
48	SUPER MWARABU MILLS, SINGIDA	SUNFLOWER SEED OIL	1479	SME
49	SUPER MWARABU MILLS, SINGIDA	MAIZE FLOUR (SEMBE MWARABU)	1480	SME
50	P & P BEE FARM, DODOMA	HONEY	1481	NORMAL
51	CHIUNGUTWA & INVESTMENT CO LTD, MTWARA	DRINKING WATER	1482	NORMAL
52	SILENT OCEAN LIMITED, CHINA	WASHING POWDER (KIBO)	1483	NORMAL
53	A TO Z TEXTILE MILLS LTD, ARUSHA	WOVEN SACKS FOR PACKING CEMENT	1484	NORMAL
54	ELIESH GROUP, MUSOMA	MIXED FRUIT WINE (ELIESH)	1485	SME
55	SHAMBANI GRADUATES ENTERPRISES LTD, MOROGORO	CULTRED SOUR MILK	1486	SME
56	A TO Z SUPERMARKET LLTD, DSM	WHITE & BROWN BREAD	1487	NORMAL
57	GAOMI HUALONG IRONWARE PRODUCT CO LTD, CHINA	ROOFING NAILS	1488	NORMAL
58	GAOMI HUALONG IRONWARE PRODUCT CO LTD, CHINA	ROUND PLAIN HEAD NAILS	1489	NORMAL

2. TESTED PRODUCT CERTIFICATES

S/N	CLIENT	PRODUCT(S)	TPC No.	STATUS
1	POLYFOAM LTD, ARUSHA	PLASTIC HOUSEHOLDS WARE	0219	NORMAL
2	JWC HOLDINGS CO LTD, DSM	STEEL TUBES	0220	NORMAL
3	SAMSON RUBBER INDUSTRIES PTY LTD, INDONESIA	INNER TUBES FOR TWO & THREE WHEELERS	0221	NORMAL
4	LODHIA STEEL INDUSTRIES, ARUSHA	STRUCTURAL STEEL	0222	NORMAL

CERTIFICATION DATA



5	LODHIA STEEL INDUSTRIES, ARUSHA	COLD ROLLED STEEL SECTION	0223	NORMAL
6	GASTANK KOREA CO LTD, SOUTH KOREA	LPG GAS CYLINDER	0224	NORMAL
7	DERKESEN COMPANY LTD, SOUTH KOREA	LPG GAS CYLINDER	0225	NORMAL
8	TANZANIA PRINTERS LTD, DSM	BEER LABELS (NECK PRINTED)	0226	NORMAL
9	TANZANIA PRINTERS LTD, DSM	BEER LABELS (BACK PRINTED)	0227	NORMAL
10	TANZANIA PRINTERS LTD, DSM	BEER LABELS (BODY PRINTED)	0228	NORMAL
11	DPI SIMBA LTD, DSM	PE PIPES FOR GASEOUS FUEL	0229	NORMAL
12	LODHIA PLASTIC INDUSTRIES LTD, ARUSHA	PLASTIC PIPING SYSTEM FOR HOT & COLD WATER	0230	NORMAL
13	A TO Z TEXTILE MILLS, ARUSHA	AGRO-Z HORTICULTURE NETTING	0231	NORMAL
14	A TO Z TEXTILE MILLS LTD, ARUSHA	AGRO Z FOOD GRAIN BAG	0232	NORMAL
15	MBEYA CEMENT CO LTD, MBEYA	MANSORY CEMENT (MC 22.5X)	0233	NORMAL

3 EXTENDED LICENCES

S/N	CLIENT	PRODUCT(S)	LICENCE No.	STATUS
1	FORTUNE CEMENT, DSM	CEMENT 32.5N	1437	NORMAL
2	TANZANIA PORTLAND CEMENT, DSM	CEMENT 32.5R	0418	NORMAL
3	GULLED INDUSTRY	BISCUITS (CHAI & NICE)	1392	NORMAL
4	BAKHRESA FOOD PRODUCTS- MWANDEGE PLANT, DAR ES SALAAM	CARBONATED SOFT DRINK	1097	NORMAL
5	LAKE CEMENT, DSM	CEMENT OPC CEM II 42.5N, CEM II B-L 32.5N, CEM II A-L 32.5 R & CEM II A-L 42.5N	1436	NORMAL
6	STANLEY TRADING, U.A.E	ENGINE OIL (MOSHI STAR)	1167	NORMAL
7	STANLEY TRADING, U.A.E	GEAR OIL (MOSHI STAR)	1168	NORMAL
8	STANLEY TRADING, U.A.E	BRAKE FLUID (MOSHI STAR)	1169	NORMAL
9	BAKHRESA FOOD PRODUCTS, DSM	CARBONATED SOFT DRINKS (AZAM MALT GINGER, PLAIN MALT & CREAM SODA)	1097	NORMAL
10	MAKAI MORINGA, DSM	SKIN CARE OIL (MORINGA)	1055	SME
11	PALMTOP VEGEOIL PRODUCTS, MALAYSIA	PALM OLEIN (TRIKEY & REINNA)	1250	NORMAL
12	MAWENI LIMESTONE LTD, DSM	CEMENT – RHINO (CEM II/B-S 52.5N)	1182	NORMAL

4. BATCH CERTIFICATES ISSUED

Batch Certification Scheme for Imports is part of implementation of the Standards (Batch Certification of Imports) Regulations for products covered under compulsory standards. Under this scheme, the Bureau is also implementing Pre-shipment Verification of Conformity to Standards (PVoC) through which products are tested and verified in countries of origin before shipment to Tanzania. During the July-December 2014 period, the number of batch certificates issued was 137, Certificates for Inspection (used vehicles) were 20,320 while the number of Certificates of Conformity (CoC) under PVoC was 15,304.

ANTIBIOTIC RESIDUES IN COWS' MILK; WHOSE CONCERN IS IT?



Ridhiwani Ramadhani
Senior Standards Officer

Antibiotic residues are remnants of antibiotic drugs or their active metabolites that are present within tissues or products e.g. meat, milk and eggs from treated animals (CAC, 2012). Levels of the drug and their

metabolites may persist at unacceptable levels and consumers can be exposed to them.

Sick dairy animals are often treated with antibiotics to control or prevent diseases. However, failure to follow required withdrawal periods after these treatments is the most common reason for presence of drug residues in marketed milk in developing countries and particularly sub-Saharan Africa.

The presence of residues in milk may result from failure to observe the mandatory withdrawal periods, illegal or extra-label use of drugs and incorrect dosage (CAC, 2012). Also, due to prevailing harsh economic conditions, dairy farmers sometimes allow only a one-day withdrawal period for milk regardless of the type of antibiotic used.

Tanzania indicated Tetracycline (i.e. Oxytetracycline), β -lactam (penicillin G), sulphonamides, cephalosporins, erythromycin and gentamycin to be the main types of antimicrobial agents in the country used to control different cattle diseases. Education on prudent use of antibiotics has been observed to be particularly lacking amongst dispensers and prescribers of antibiotics in the country.

In order to safeguard human health, the World Health Organization (WHO) and the Food Agriculture Organization (FAO) have set standards for acceptable daily intake and maximum residue limits in foods (CAC, 2012). Regulatory limits for antibiotic residues have been imposed on the dairy industry in Tanzania like many other countries. However, Tanzania dairy industry has not adopted any control program to ensure the safety of raw milk from the primary production with regard to antibiotics residues limit levels. These limits, which apply to both the parent drug or chemical and its metabolites, need to be enforced within Tanzania. The limits and guidelines would then serve as a basis for therapeutic decisions.

Dairy markets in most sub-Saharan African countries are mostly supplied by small-scale farmers' enterprises often comprising herds with fewer than four cows of mainly improved dairy breeds or in some instances from larger agro-pastoral zebu herds. The marketing of milk from most small-scale and agro-pastoral producers mainly follows informal or traditional channels. These informal channels account for more than 80% of marketed milk in East Africa and may involve multiple intermediaries.

Concerns about food safety are increasing in developing countries including Tanzania where urbanization, increasing incomes and changing life-styles are associated with greater dependence on marketed foods by an increasing number of people. The demand for animal-source foods is growing

fast in these countries. Ensuring the safety and quality of such products when they pass through lengthening and increasingly anonymous marketing chains and are supplied from predominantly smallholders and pastoral systems presents a great challenge. Ensuring that dairy products are free from chemicals like antibiotic residues is one of the challenges facing dairy farmers, be it smallholders or large scale ones.

ANTIBIOTICS RESIDUES AND HUMAN HEALTH

The presence of antibiotic residues in milk is of public and economic concern, because of the risk of impaired health in persons who consume milk from treated cows and the interference with manufacturing of dairy products by the antibiotics present in milk. Detection of antibiotic drug residues in milk above allowable limits is a serious food safety risk because it may lead to allergic reactions in sensitive people, toxicity, carcinogenic effects or to a selection of pathogenic resistant bacteria that do not respond to treatments commonly used for human illnesses.

The consumption of sub-therapeutic levels of antibiotics in the milk can result in the development of antimicrobial-resistant enteric bacteria, which may cause diseases that are consequently difficult to treat. Penicillin especially, as well as other β -lactam antibiotics such as cephalosporins and carbapenems could cause allergies if high levels of residues persist in milk consumed by penicillin-allergic persons. Tetracyclines residues also have the potential to stain teeth of young children. Furthermore, enteric bacteria (e.g. *E. coli*) are an important reservoir of resistance genes and the most important likely source of contamination of milk. It is therefore logical to assume that they are also the most important link between animal and human antimicrobial resistance. Contributing to the controversy is the isolation of bacterial pathogens of animal and human origin that are increasingly resistant to most frontline antibiotics, including third-generation cephalosporins, aminoglycosides, and even fluoroquinolones used to treat human diseases.

There are several factors which are thought to influence the development of resistance and this include drug concentration, long-term exposure, organism type, antibiotic type and host immune status. Low-level, long-term exposure to antibiotics may in particular have a greater selective potential than short-term and full-dose therapeutic use.

TECHNOLOGICAL EFFECT OF ANTIBIOTIC RESIDUES

Antibiotic residues in milk are undesirable from a manufacturing perspective, as they can interfere with starter culture activity and hence disrupt the manufacture processing quality of yoghurt, cheese and other fermented dairy products by inhibiting starter cultures used in the preparation. The dairy starter cultures currently used in Tanzania dairy industry for the primary acidification of the milk belong mainly to the genera *Lactococcus*, *Streptococcus*, *Leuconostoc* and *Lactobacillus*. These starter cultures are mainly lactic acid bacteria used in the production of a range of fermented milk products, including cheese, yoghurt, cultured butter and cultured milks.

The primary role of starter cultures in cheese manufacture is the production of lactic acid from lactose at a consistent and controlled rate. The consequent decrease in pH affects a number

of aspects of the cheese manufacturing process and ultimately cheese composition and quality. For example total inhibition of the starter culture has been observed to occur at approximately 60µg/kg penicillin G. Pasteurization and other forms of heat treatment eliminate pathogenic microorganisms but have limited or variable effects on drug residues.

The international regulatory standards, which are based on the acceptable daily intake (as determined by the Codex Alimentarius Commission) throughout life and a safety factor applied to the no-observable-effect level, were summarized and set tolerance limits for drug residues in animal derived food products e.g. milk and milk products. Smallholder dairy farmers supply about 90% of the milk consumed in the Dar es Salaam region. A remarkable feature of this sector is the fact that 74% of all milk is marketed as raw milk through informal channels (Kivaria in press). Hazard Analysis and Critical Control Points (HACCP) and good farming practice codes have been recognized throughout the world and are becoming increasingly relevant in developing countries as a sometimes compulsory tool to ensure food safety. However, the concept is relatively not well adhered to by smallholder dairy farmers in Tanzania. Milk produced in Tanzania by the informal sector and particularly those from smallholders which does not pass through intermediary processing in the factory is not regulated by any agency and such milk may pose a health hazard due to contamination with antibiotics residues. Since most milk reaches consumers directly or via various small retail outlets, then intervention at the farm is especially important where noncompliance regarding withdrawal times following drug therapy is the major cause of antibiotic residues in cattle milk.

Creation of awareness among consumers, who are currently not adequately aware of the milk safety problem may be an initial step toward addressing the problem. Likewise, there is a need for development of potential interventions to address this problem through marketing channels. Moreover, testing for residues at milk collection centres and registration and certification of milk the collection centre by responsible regulatory authorities can be among the best solutions to this safety and quality problem of milk.



QUALITY PARAMETERS OF LIQUID FUELS

Alphred C. Mosha
Quality Assurance Officer

Liquid fuels are combustible or energy-generating molecules that can be harnessed to create mechanical energy which usually produce kinetic energy. Most liquid fuels in widespread use such as gasoline, diesel oil, kerosene, heavy oil, Naptha, lubricating oils, etc. are derived from fossil fuels. However, there are several types of liquid fuel, such as hydrogen fuel (for automotive uses), ethanol, and biodiesel. Many liquid fuels play a primary role in transportation and the economy.

PROPERTIES OF LIQUID FUELS

The properties of liquid fuels depend on the specific type of the liquid fuel but the most common properties of liquid fuels are as given below.

Density

This is defined as the ratio of the mass of the fuel to the volume of the fuel at a reference temperature of 15°C. Density is measured by an instrument called hydrometer or digital densitometer. The knowledge of density is useful for quantity calculations and assessing ignition quality. The unit of density is kg/m³.

Density as a quality parameter helps in identification of liquid fuel types. For example gasoline at 15°C has a density of 720-780 while gasoil has a density of 820-870.

Viscosity

The viscosity of a fluid is a measure of its internal resistance to flow. Viscosity depends on temperature and decreases as the temperature increases. Any numerical value for viscosity has no meaning unless the temperature is also specified. Viscosity is measured in stokes/centistokes. Each type of oil has its own temperature-viscosity relationship. The measurement of viscosity is made with an instrument called viscometer.

Viscosity is the most important characteristic in the storage and use of fuel oil. It influences the degree of pre-heat required for handling, storage and satisfactory atomization. If the oil is too viscous, it may become difficult to pump, hard to light the burner, and tough to operate. Poor atomization may result in the formation of carbon deposits on the burner tips or on the walls. Therefore pre-heating is necessary for proper atomization.

Flash point

The flash point of a fuel is the lowest temperature at which the fuel can be heated so that the vapour gives off flashes momentarily when an open flame is passed over it. The flash point as a quality parameter indicates how easy fuel may burn. Fuels with higher flash points are less flammable or hazardous than fuels with lower flash points.

Pour point

The pour point of a fuel is the lowest temperature at which it will pour or flow when cooled under prescribed conditions. As a quality parameter, pour point is a very rough indicator that can determine the lowest temperature at which liquid fuel can be readily pumpable.

Volatility

Volatility is the ability of the liquid fuel to vaporize. Gasoline is more volatile than diesel oil, Jet-A, or kerosene, not only because of the base constituents, but also because of additives. Volatility is often controlled by blending with butane, which boils at -0.5 °C. The volatility of petrol is determined by the Reid vapour pressure (RVP) test.

In cold weather, too little volatility results in cars failing to start and in hot weather, excessive volatility results in vapour lock, where combustion fails to occur, because the liquid fuel has changed to a gaseous fuel in the fuel lines, rendering the fuel pump ineffective and starving the engine of fuel.

Octane number

Octane number is a measure of gasoline's antiknock performance, that is, gasoline's ability to resist knocking as it burns in the

combustion chamber. There are two laboratory test methods used to measure the octane number of gasoline. One method yields the Research octane number (RON), while the other results in the Motor octane number (MON).

RON correlates best low-speed, mild-knocking conditions while MON correlates best high-speed and high-temperature knocking conditions and with part-throttle operation. For a given sample of gasoline, RON is always greater than MON. The difference between the two indicates the sensitivity of gasoline to changes in operating conditions. The larger the difference, the more sensitive the gasoline. Knock-free engine performance is as important as good drivability.

Specific heat

Specific heat is the amount of kJ needed to raise the temperature of 1 kg of oil by 1°C. The unit of specific heat is kJ/kg°C. It varies from 0.22 to 0.28 depending on the oil specific gravity. The specific heat determines how much steam or electrical energy it takes to heat oil to a desired temperature. Light oils have a low specific heat, whereas heavier oils have a higher specific heat.

Calorific value

The calorific value is the measurement of heat or energy produced, and is measured either as gross calorific value or net calorific value, the difference being the latent heat of condensation of the water vapour produced during the combustion process. Gross calorific value (GCV) assumes all vapour produced during the combustion process is fully condensed. Net calorific value (NCV) assumes the water leaves with the combustion products without fully being condensed. Fuels should be compared based on the net calorific value.

Sulphur

The amount of sulphur in fuel oil depends mainly on the source of the crude oil and to a lesser extent on the refining process. The main disadvantage of sulphur is the risk of corrosion by sulphuric acid formed during and after combustion.

Carbon residue

Carbon residue indicates the tendency of oil to deposit a carbonaceous solid residue on a hot surface, such as a burner or injection nozzle, when its vaporizable constituents evaporate.

many deaths and much illness among urban residents all over the world particularly in developing countries. Fluoride is one of the major pollutants of drinking water.

Fluoride in drinking water brings both beneficial and harmful effects to human health. When present in water in allowable limits, it is nutritionally important for human health as it is an important constituent in the formation of bones and teeth especially during the early years of growth. Fluoride is incorporated into these tissues in a concentration dependent on the amount ingested with food or drinking water. However, ingestion of high concentrations of fluoride exceeding the required amount especially in drinking water results in a disease called fluorosis.

Fluorosis is a condition characterized by teeth staining ranging from yellow to dark brown. Although moderate fluorosis is not a disease, it causes psychological effect. It may be somewhat embarrassing to peers to the extent of covering the mouth while laughing or smiling. In more severe cases, brown stains are widespread and teeth often present a corroded-like appearance. In advanced cases, fluorosis causes pain and damage to bones and joints.

Fluoride is found in large quantities in the regions located in the Great Rift Valley which include Kilimanjaro, Arusha, Shinyanga, Manyara, Dodoma, Singida, Mara and Tabora. For instance some Rift Valley soda lakes in Tanzania were reported to have fluoride concentration of up to 690 mg/L.

Like any other pollutant, fluoride pollution occurs due to both natural and man-made reasons. The large quantity of fluoride in Rift Valley ground water is due to weathering of fluoride containing volcanic rocks. In addition, use of phosphate fertilizer in agricultural activities also contributes to high concern of fluoride in ground water.

Factors which determine the presence of fluoride ions in ground water include the availability and solubility of parent fluoride minerals in which water comes in contact with, rock porosity, velocity of flowing water, temperature of the interactions between the rocks and the water, pH of the water and concentration of calcium ions present in the water.

In order to decrease the risk of fluorosis and make water suitable for drinking especially in the Great Rift Valley regions of Tanzania, which have high concentrations of fluoride exceeding the maximum limit according to the Tanzania Standard for drinking water; there are two options. The first option is to provide safe water with acceptable fluoride concentration from an alternative source of water. This may mean to buy drinking water or bring water from far away which has cost implication. The second option is to remove fluoride from available sources with high fluoride concentration before supplying to the public using a proven technology, a process called defluoridation. Methods currently available for defluoridation include chemical additives or precipitation, adsorption and membrane separation methods. In chemical additive methods, certain reagents are added and optimum conditions for the defluoridation are maintained. Adsorption method is based upon the adsorption of fluoride on various adsorbents. Membrane separations include the technique of reverse osmosis and electrodialysis.

These techniques have been used more successfully in the developed world than the developing world due to the costs involved. The most important aspect is to make a choice of a defluoridation method such that after defluoridation, other water quality parameters are not affected.



FLUORIDE IN DRINKING WATER, A DOUBLE-EDGED SWORD

Rehema Nyamoga
Quality Assurance Officer

One of the most important criteria that determine the usefulness of water for drinking is its chemical nature. For such reason, not all the waters are fit for drinking. When water is unfit for drinking due to contamination, it is referred to as polluted water. Pollution of drinking water causes



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