A BIANNUAL BULLETIN OF TBS

announcer

VOL.XLVI JAN – JUNE 2019

NO.1 ISSN 0856-0374

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Prime Minister of the United Republic of Tanzania Hon Majaliwa K Majaliwa (right) listens to the Head of Electrical Engineering Laboratory Mr Anectus Ndunguru during his visit to the Bureau's headquaters at Ubungo Dar es Salaam

VISION

A model of excellence in standardization and quality assurance services by 2025.

MISSION

To promote standardization and quality assurance in industry and commerce through standards development, quality assurance, metrology and testing services for sustainable socio-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

i. Customer focus
We deliver services to meet consumers' expectations.

ii. Quality culture
We employ the best available practices and professional values in performing our duties.

iii. Transparency
We exercise openness, impartiality, accurately and promptly share information with all stakeholders.

iv. Integrity
We constantly demonstrate impartiality, fairness and honesty while upholding the highest ethical standards.

v. Team work
We work together through concerted efforts to achieve our corporate goals.

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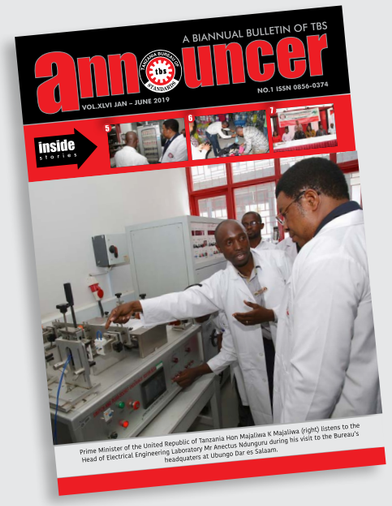

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Torch passed to TBS to lead industrialisation

The Tanzania Bureau of Standards (TBS) has so far taken necessary steps to prepare the country's economy and society for the Fourth Industrial Revolution by focusing on three key areas: education, business environment, and connectivity.

For its watchdog role as the regulator of standards as well as its discernible work to nurture the culture of quality assurance among the populace, TBS has played a critical role in public education to ensure that people understand quality as an important element in doing business both in the local, regional and international markets.

In an era dominated by innovation with cutting-edge technologies disrupting entire economic sectors at a breathtaking rate, the scope of technological advances will transform how we produce, distribute, and consume. And this role of transforming how we produce, distribute and consume rests on the performance of TBS.

Tanzania is a nation of high potential in attracting investments in industrial development because of its economic and commercial opportunities which are both exciting and enticing to make the country the next emerging-market and engine of global economic growth.

Today Tanzania is listed as one of the high-growth countries which include Côte d'Ivoire, Ethiopia and Kenya to have made substantial progress in reducing their dependence on commodity exports in favour of trade, investment, and domestic consumption.

President John Magufuli has laid strong emphasis on the revival and strengthening of the industrial sector to enable it generate mass employment, produce domestic consumption goods for the growing population as well as producing goods for export.

Historically, industrialisation has been the most effective driver of structural poverty reduction, owing to its capacity to expand employment opportunities, boost productivity, and increase wages.

The good news is that the government is working to build an industrial sector that is diversified, globally competitive, environmentally sustainable, and capable of improving people's living standards significantly.

TBS, as a standards regulator which has won accolades both regionally and internationally for its superb performance since its inception in the late 1970s, has been working to ensure that current and future generations gain the skills they will need to thrive in an evolving labour market through promotion of adoption of standards and quality assurance by industries and commercial sectors with a view to complement national efforts to offer products of better and higher competitive edge in the local and external markets.

The thrust is to build an internationally competitive business environment through development of industrial clusters formation, institutional support and concentrated infrastructure development and the promotion of internationally competitive industries to make the sector the real engine of economic growth.

As Prime Minister Kassim Majaliwa said early this year during his tour of TBS premises, the government has already made critical decisions to prepare the country's economy for what lies ahead -- and is supporting TBS with concrete action to address outstanding challenges, including rising demand for a wide range of specialized knowledge professionals and an urgent need to improve connectivity, especially in remote rural areas where the majority people live.

With government support, TBS gives citizens and business people the tools they need to take advantage of the opportunities that the Fourth Industrial Revolution creates, and ensure that future generations, too, can reach their full potential in a rapidly changing world.

The country's economy must move beyond producing raw materials to building dynamic and competitive manufacturing sectors with higher value added. This great East African country must draw on the opportunities presented by participation in global and regional value chains.

New and innovative industrial-development strategies, as well as carefully tailored measures to attract foreign direct investment, must be introduced.

Certainly, to develop such strategies and participate effectively in industrial value chains, Tanzanians need knowledge. Investment in education and skills training, an activity currently done by TBS, is imperative to facilitate successful and lasting industrialization.

By understanding and drawing on proven innovations from around the world, Tanzania could leapfrog more developed countries technologically, building the capacity to produce more sophisticated, higher-value goods.

Knowledge of other countries' experiences will also help the country to avoid the pitfalls of unbridled industrialization– particularly environmental damage. With guidance from TBS, the government ensures that its industrial-development strategy includes effective environmental safeguards.

Indeed, Tanzania is well placed to industrialise. Beyond its massive natural-resource endowments, the country has a favourable demographic profile: its rapidly growing population means that it will soon have the world's largest workforce and high urbanisation rates.

However, as economists warn, industrialization is never automatic. Government must step up to address market failures, while planning, implementing, and enforcing industrial policies that address the shortcomings of previous ineffective versions.

Already, the process of industrialisation is underway in the country and with commitment and support from development partners Tanzania can realize inclusive and sustainable development for the benefit of its people.

Hopefully, mandated to undertake measures for quality control of products of all descriptions and to promote standardization in industry and commerce, TBS has the power to carry these functions towards building an industrial nation.

PM commends TBS for efforts in curbing substandard products

By Neema Mtemvu

The Prime Minister, Hon. Majaliwa Kassim Majaliwa, has commended Tanzania Bureau of Standards (TBS) for its efforts in curbing substandard products in the country.

Hon. Majaliwa issued the commendation recently, during his familiarization tour at the TBS headquarters in Dar es Salaam.

"I am really impressed by your work performance and the modern tools installed in the laboratories. I want you to extend your services to regions and districts where the majority people live," he said.

The Premier added, however, that more efforts were needed, especially to extend the scope of the service to the regions and districts where the majority of the people lives.

During his visit, Hon Majaliwa also visited the TBS Test House where he applauded workers for their efforts and diligence in ensuring that all products are accurately tested. He also he reminded workers to adhere to the principles of professionalism by ensuring timely delivery of services to win public confidence and to facilitate trade.

He urged the national standards watchdog to provide information and education to the general public on various activities it performs through the use of media so that the public can be aware of its activities.

The Prime Minister, who had also visited the Tanzania Food and Drugs Authority (TFDA), directed five Ministers namely Minister for Industry and Trade, Hon. Joseph Kakunda, Minister for Health, Community Development, Gender, Elderly and Children, Hon. Ummy Mwalimu, Minister of State in the Prime Minister's Office, Investment, Hon. Angela Kairuki, Minister for Livestock and Fisheries Hon. Luhaga Mpina and Minister for Agriculture, Hon. Japhet Hasunga, to meet and review the laws governing regulatory institutions particularly on areas of conflicts which affect the business community and submit recommendations for improvement by 30th March, 2019.

Prime Minister of the United Republic of Tanzania Hon Majaliwa K Majaliwa (right) listen to explanations concerning testing of cells in the TBS Electrical Laboratory during his visit to the Bureau's headquaters in Ubungo Dar es Salaam.

TBS conducts crackdown on secondhand clothes in Arusha, Kilimanjaro

By Roida Andusamile

The Tanzania Bureau of Standards (TBS) has seized assorted secondhand undergarments in Arusha city market outlets.

Inspector at the state-owned standards watchdog, Lucas Gwila said the seizure is a result of the ongoing operation to phase-out the secondhand underwear in the country.

He said that most of the underwear clothes were confiscated include brasiers, underpaints and socks.

The operation is aimed at ensuring secondhand undergarments are not used by Tanzanians as they could infect users with skin diseases.

"The operation is in accordance with the Standards Act of 2009 that prevents the use of secondhand undergarments," he said, adding that secondhand underwear business was contrary to TZS 758: 2003 requirements on compulsory standards for inspection and acceptance criteria for used textile products.

According to Gwila the seized clothes will be burnt to ashes at the Arusha dumpsite. He called on traders to adhere to the TBS laws and stop importing and selling secondhand underwears in the country.

He said the crackdown operation was held at the klokoni market in the city of Arusha where they found a good number of underwear on sale.

"We have been issuing warning against the sale of secondhand underwear due to healthy effects to the public, but it seems to does not click well. We need joint effort to educate the public," he said.

Gwila added that the Bureau is conducting now and then inspections and seize the goods but they still flock the market as the business people and importers are going against the rules and regulations

He said the war against the importation of the products is a challenge since customers are readly available thus importers use all means possible to ensure that they serve the market.

"The public should heed the call against the use of the products since the effects are not immediately felt and they pose health dangers including skin cancer, that is why we are conducting such inspections and seizing the products," he said.

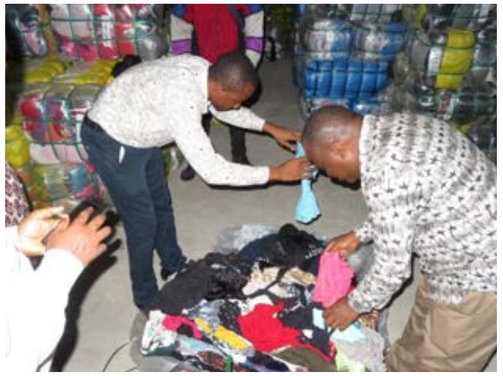
He said that they want to focus on public education as they believe that should they understand the consequences of using second-hand inner wear and stop buying them, then importers will stop bringing them in as there will be no market.

While in Kilimanjaro the special operation was conducted at the famous market situated within the King George Memorial Grounds at Moshi Municipality along Moshi-Arusha Highway.

However, the Memorial Market Chairman, Godfrey Shao pointed out that his team has been enlightening the market traders to only sell clothes which are required in the law, to avoid unnecessary disputes with the government which may incur them loss.

In an attempt to revamp the domestic garment industry, in 2016 the East African Countries heads of state vowed to phase out used clothing imports.

In 2003, Tanzania introduced legislation on national standards for used garments(TZS 758:2003), which included a ban on imports of secondhand underwear items generally categorized as next to skin' clothes, including vests, pants, brassiers, boxers and socks.



TBS officials seizing consignments of secondhand clothes in the market.

"We will continue to be good ambassadors of standards"

By Deborah Haule

Students from higher learning institutions who participated in the 2019 African Standards Day essay competition have vowed to become ambassadors of standards and advocates of quality culture in their respective institutions as their contribution in promoting standardization and quality consciousness in the society.

Speaking on behalf of others, the winner of the competitions, Ms. Rebecca Patrick from the Sokoine University of Agriculture (SUA) thanked Tanzania Bureau of Standards for organizing the essay competition and added that standards plays a crucial role in the development of the country's economy hence it is important that every person adheres to them.

She further insisted that she, and other winners, will continue to be good ambassadors of standards in their institutions as well as in the community.

Speaking before presenting the awards to the best students on essay writing competition, the Chairman of TBS Board of Directors, Prof. Makenya Maboko said the competition aimed at building a strong foundation among students on standardization and quality assurance matters.

He commended the participants for taking the challenge and applauded those who managed to enter the top ten stage.

Earlier in her introductory remarks, the Chief Judge Dr. Louiana Makundi of the competition said the essay writing competition on themes linked with standards not only bring to students awareness about the importance of standardization to the global economy, but also brings out their potential on writing styles, skills and creativity. She commended TBS for organizing the remarkable competition.

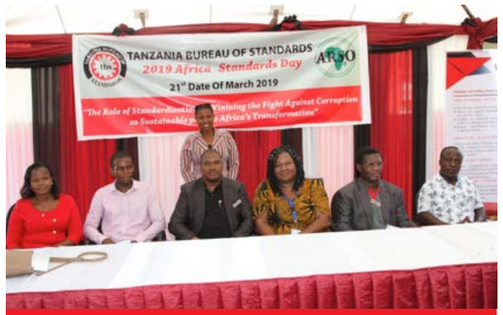
This year TBS marked the 2019 African Standards Day themed "The Role of Standardisation in winning the fight against corruption for sustainable Africa's Transformation" by organizing a climax day forum on 21st March 2019 with activities including presenting of awards to higher learning institutions students winners of the 2019 ARSO day essay competition at national level.

Ten students from various institutions were awarded for their outstanding performance in essay writing. The students are Rebecca Patrick from Sokoine University of Agriculture who was the first winner and Abraham Manswet Bella from Sokoine University of Agriculture and Leticia Einhad Mbawala from the Institute of Tax Administration who were the first and second runners-up respectively.

Other in the top 10 were Mlay Allen Frank from the University of Dar es Salaam, Kazoba Albinus from Muhimbili University of Health and Allied Science, Lucy Bakari Kasuke from the University of Dar es Salaam, Alice David Gomezulu from the Sokoine University of Agriculture, Leonard Nsigaye from the National Institute of Transport, Noely Mapunda from the Catholic University of Health and Allied Sciences and Wernery Isaya Kapinga from Saint Augustine University.

The competition attracted 88 contestants from different Higher learning institutions including University of Dar es Salaam, St. Joseph University, National Institute of Transport, Mzumbe University, Ardhi University, Sokoine University of Agriculture, Muhimbili University of Health and Allied Sciences, Saint Augustine University and Catholic University of Health and Allied Sciences.

The event which drew over 100 participants including the students, manufacturers, academicians and representatives from other Government agencies aimed at raising awareness on the impact of corruption in sustainable development of Africa and how the implementation of standards through effective quality infrastructure can be used to create opportunities for the fight against corruption.



The winner of 2019 Essay Competition Ms. Rebecca Patrick (standing at the back) from Sokoine University of Agriculture together with judges and TBS staff during the commemoration of the 2019 African Standards Day.

Over 20,000 people reached by the Bureau

By Gladness Kaseka

TBS reached more than 20,000 people including 437 SMEs and 6,653 primary and secondary students in Southern, Lake and Eastern zones.

The Bureau has organized awareness campaigns at district level, aimed at empowering people with the knowledge about standardization, the importance of purchasing certified products, publicizing hotline number and informing the public on free of charge certification services offered by TBS to SMEs.

TBS Public Relations Officer, Neema Mtemvu, said that the campaign started since 2016, where the Bureau started to create awareness to university students with the aim of creating general awareness believing these students will be good ambassadors of TBS and spread the word as the students are coming from different regions and have vast knowledge. In the 2017, the Bureau continued with the campaign narrowing down to the district level and targeting the general public and students at market places, secondary and primary schools, bus stands and business centres.

For this year, the districts involved were Nachingwea, Kilwa, Songea, Kahama, Bukoba, Tarime, Nyamagana, Kisarawe, Korogwe, Ifakara and Kilombero.

"The aim of the campaign was to educate the public on the importance of purchasing certified products as most of these people (more than 15,000) will be our ambassadors in standards related matters," Mtemvu said.

On her side, the Senior Quality Assurance Officer, Amina Yassin the campaign has also been used to encourage SMEs to grab the opportunity of free of charge certification services offered by the Bureau for easy access to local and international markets.

"We have been educating SMEs on the procedure on how to get TBS quality mark on their products free of charge," she said, adding that TBS officers have used the opportunity to encourage SMEs to apply for specific training as per their product type which is also provided free of charge.

One of the entrepreneurs from Korogwe, Mr. Robert Mhando, applauded the Bureau on the efforts they are making through their campaigns by ensuring the procedure is well known and providing the certification service free of charge.

"I never knew one day TBS official will be in a position to visit us, but I promise to work on what they have told us and send the application for the quality mark in order for my products (maize flour) to access local and regional markets. I also advice TBS to reach all districts and if possible, to have an office or officer in every region or district," Mhando said.

Students of Nyerere Secondary School in Korogwe Tanga, listen to TBS Senior Marketing Officer, Ms. Gladness Kaseka (not in picture) enlightens them on standards issues

TBS urged to strengthen fight against substandard products

By Deborah Haule

The Parliamentary Standing Committee on Industry, Trade and Environment has urged Tanzania Bureau of Standards to strengthen its fight against substandard products so a to safeguard the health of the people and their environment as well as protecting the country's economy.

The call was issued by the Committee's Chairman, Hon. Sadiq Murrad during the Committee's visit at TBS headquarters in Dar es Salaam on 20th March 2019.

He said despite the presence of TBS inspectors at ports and various entry points, Tanzania is still flooded with substandard products, further noting that there are a lot of complaints from the public regarding substandard products which costs the nation dearly.

He urged TBS to toughen its efforts to ensure the market is free from substandard products and particularly insisted that more should be done at the Dar es Salaam Port.

Speaking on the Committee's visit, Hon. Murrad said the Parliament usually works on behalf of citizens of the United Republic of Tanzania by visiting different Government institutions to cross check their performances.

"Our visit at TBS has been very interesting as we have observed how TBS works to ensure that all products available in the market meet the set standards," he said.

On his side, the Minister for Industry and Trade, Hon. Joseph Kakunda said the Government is aware of the challenges facing the Bureau and had started working on them. On shortage of staff, particularly, he said the government wants to see the Bureau recruit at least 1,000 staff.

"We are told that that you need at least 750 staff; they are not enough, because the government wants to establish more ports, so many workers will be recruited," he said, noting that the government would fulfil its promise to contribute 2bn/- for construction of a new building at TBS offices in Dar es Salaam before the end of this year.

Concerning the new TBS Test House under construction, the Minister directed the TBS Management to conduct due diligence of the actual costs involved. He cited the cost of electrical installation and cooling system as being particularly high.

Acting Head of the Chemistry Laboratory, Mr. Charles Batakanwa (right) explains to the members of the Parliamentary Standing Committee on Industry, Trade and Environment and the Minister for Industry and Trade on how different tests are done in the Chemistry Laboratory.

Produce products that conform to standards – Karume

By Roida Andusamile

The former president of the Revolutionary Government of Zanzibar, His Excellency Amani Abeid Karume, has urged local manufacturers to produce products that conform to standards so as to meet market criteria both locally and internationally.

President Karume made the remark recently during the official opening of the 5th Zanzibar Festival held at Maisara ground from 2nd to 15th January, 2019.

He said regulatory authorities should be of great help by educating the community on all quality related matters and providing services to the manufacturers and entrepreneurs as soon as required in order to facilitate trade.

"Regulatory authorities are there to facilitate trade and not otherwise, therefore we do not expect to receive any complaints from manufacturers claiming your organizations is becoming a trade barrier," he insisted.

Meanwhile, the Second Vice President of Zanzibar, His Excellency Ambassador Seif Ali Idd urged Tanzania Bureau of Standards (TBS) and Zanzibar Bureau of Standards (ZBS) to intensify inspection of imported products so as to curb the influx of substandard products to Tanzanian market.

Ambassador Idd made the remark during his visit at a joint pavilion of the bureaus from Mainland Tanzania and the Isles. The pavilion was visited by 500 visitors.

He said of recent, imported substandard products have been flooding the market, which indicates that bureaus' need to intensify inspection of imported goods.

"You (ZBS and TBS) have the mandate to remove substandard products in the market by restricting substandard products to enter into our country," he insisted.

Manufacturers urged to adhere to standards requirements

By Deborah Haule

MANUFACTURERS in the country have been insisted to adhere to requirements of standards to enable their products access the local, regional and foreign markets.

Chairman of the Board of Directors of Tanzania Bureau of Standards (TBS), Prof. Makenya Maboko made the call recently during the national commemoration of the African Day of Standardisation organized and held at the TBS headquarters.

Prof. Maboko said for the manufacturers to embark on local, regional and international markets, they must make sure that they produce products conforming to the requirements of the standards while maintaining integrity during the production process.

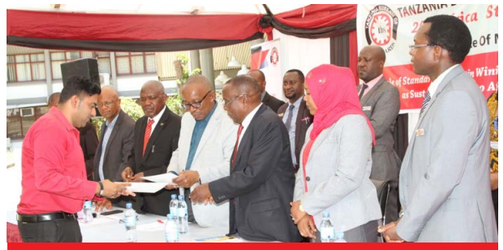
"Integrity is very important, do not compromise with the conditions of the Standards Mark Licences. Use them properly as one of your important tools to take your businesses beyond our borders," he insisted.

He noted that it was the Government's desire to empower and uplift SMEs in the country that is why through the Small Industries Development Organisation (SIDO), SMEs can certify their products at TBS for free.

He emphasized that it is the obligation of all manufacturers to make sure that their products are certified, adding that TBS would continue educating the public on the importance of consuming certified products.

On their part, manufacturers requested the Government to collaborate with them in the war against substandard goods which usually create unfair business ground in the market.

During the event, 38 manufacturers including Small and Medium Entrepreneurs (SMES) were granted with licences to use the standards mark of quality on their products.



Chairman of the TBS Board of Directors Prof. Makenya Maboko (third right) and TBS Director General Dr. Athuman Yusuf Ngenya (fourth right) present a TBS standards mark licence to one of the manufacturers as part of commemoration of the African Day of Standardisation organized and held at TBS headquarters in Dar es Salaam.

TBS destroys corrugated iron sheets worth 700 m/-

By Neema Mtemvu

A consignment of 50,000 pieces of corrugated iron sheets worth over 700m/- which was imported by Dar es Salaam based Steel Searches Company (TZ) Limited has been intercepted and destroyed for failure to meet required standards.

The goods which were imported in August last year were intercepted at the Dar es Salaam Port by the officials of Tanzania Bureau of Standards.

Speaking recently in Dar es Salaam during an operation to destroy the iron sheets at the company's premised located at Chang'ombe area, the TBS Senior Inspector Eng. Donald Manyama, said the iron sheets failed to meet the requirements of the standard, which is TZS 353:2014.

"We held talks with the Management of the company which committed itself to follow all procedures in importing similar products in future, so as to meet the prescribed requirements," he said.

Eng. Manyama said they would destroy all the substandard sheets which are at the company's premises, urging other investors to stick to production requirements. The sheets did not meet the minimum standard gauge of 32-mm thickness.

"These sheets do not have at least the minimum thickness gauge; thus, they are not fit for roofing residential houses," he said, adding that the substandard sheets have a short life span and may only be used for fencing or other uses but not for roofing.

The inspector said the Bureau would continue to educate and inspect industries and other manufacturers to ensure they comply with production standards within the region.

He added that Tanzania has decided to build an industrial economy in few years to come so all manufacturers have to support the government's agenda by producing quality goods which can be sold at any market in Tanzania and beyond borders.

Speaking during the event, an official of the company who did not want to reveal her name thanked the TBS officials for visiting their factory, adding they were not aware that the manufactured sheets were of low quality.

She said they would continue collaborating with relevant government authorities in order to avoid importation of substandard goods.

The Standards Act No. 2 of 2009 states clearly that TBS is mandated to promote standards, and in doing so it cannot compromise quality. The Act empowers the Bureau to suspend production or importation of any goods which do not follow the required procedures.

Destruction of substandard corrugated iron sheets under way.

Finalized Standards

S/No.	FTZS No.	Title
	FTZS 2344 – 1:2019/ISO 15874-1:2013	Plastic piping system for hot and cold water installations – Polypropylene (PP) – Part 1: General.
	FTZS 2344 – 2:2019/ ISO 15874-2:2013	Plastic piping system for hot and cold water installations – Polypropylene (PP) – Part 2: Pipes.
	FTZS 2344 – 3:2019/ ISO 15874-3:2013	Plastic piping system for hot and cold water installations – Polypropylene (PP) – Part 3: Fittings.
	FTZS 2344 – 5:2019/ ISO 15874-5:2013	Plastic piping system for hot and cold water installations – Polypropylene (PP) – Part 5: Fitness for purpose of the system.
	FTZS 2344 – 7:2019/ ISO 15874-7:2013	Plastic piping system for hot and cold water installations – Polypropylene (PP) – Part 1: Guidance for the assessment of conformity.
	FTZS 2345:2019/ISO 21138-2:2013	Plastics piping systems for non-pressure underground drainage and sewerage - Structured-wall piping systems of un plasticized poly (vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) - Part 2: Pipes and fittings with smooth external surface, Type A.
	FTZS 2190 – 10:2019 / ISO 6182-10:2014	Fire protection -- Automatic sprinkler systems -- Part 10: Requirements and test methods for domestic sprinklers.
	FTZS 2190 – 11:2019 / ISO 6182-11:2014	Fire protection -- Automatic sprinkler systems -- Part 11: Requirements and test methods for pipe hangers.
	FTZS 2190 – 7:2019 / ISO 6182-7:2004	Fire protection — Automatic sprinkler systems — Part 7: Requirements and test methods for early suppression fast response (ESFR) sprinklers.
	FTZS 2346 – 8:2019 / ISO 14520-8:2016	Gaseous fire-extinguishing systems -Physical properties and system design - Part 8: HFC 125 extinguishant.
	FTZS 2346 – 9:2019 / ISO 14520-9:2016	Gaseous fire -extinguishing systems - Physical properties and system design - Part 9: HFC 227ea extinguishant.
	FTZS 2346 – 10:2019 / ISO 14520 - 10:2016	Gaseous fire-extinguishing systems - Physical properties and system design - Part 10: HFC 23 extinguishant.
	FTZS 2347:2019 / ISO 16923:2016	Natural gas fuelling station - CNG stations for fuelling vehicles.
	FTZS 2372:2019 /EAS 902: 2018	Bulk Liquefied Petroleum Gas (LPG) road tankers - Assembling Requirements.
	FTZS 2373:2019 /EAS 903: 2018	Road tankers — Welded steel tanks for Liquefied Petroleum Gas (LPG) — Design and manufacture.
	FTZS 2374-1:2019 / EAS 924-1: 2018	Handling, storage, and distribution of Liquefied Petroleum Gas (LPG) in domestic, commercial, and industrial installations — Code of practice Part 1: Storage and filling sites for refillable LPG containers of capacity not exceeding 150 L.
	FTZS 2374-2:2019 /EAS 924-2: 2018	Handling, storage, and distribution of Liquefied Petroleum Gas (LPG) in domestic, commercial, and industrial installations — Code of practice — Part 2: LPG installations involving gas storage vessels of individual water capacity exceeding 150 L and combined water capacity not exceeding 9 000 L per installation.
	FTZS 2375:2019 /EAS 925: 2018	Inspection and testing of Liquefied Petroleum Gas (LPG) road tankers.
	FTZS 2358:2019	Coal briquettes for domestic use –Specifications.
	FTZS 2359:2019	Coal for cement manufacture – Specifications.
	FTZS 2360:2019/ ISO 561:1989	Coal preparation plant - Graphical symbols.
	FTZS 2361:2019/ ISO 924:1989	Coal preparation plant - Principles and conventions for flow sheets.
	FTZS 2362:2019/ ISO 20905:2004	Coal preparation - Determination of dust/moisture relationship for coal.
	FTZS 2363:2019	Rock core drilling and sampling of rock for site exploration - code of practice.
	FTZS 2364:2019	Transportation and preservation of rock core samples - code of practice.
	FTZS 2365:2019	Guideline for establishment, use and management of refuge chamber in underground mines.

	FTZS 2366:2019/ ISO 19434:2017	Mining – classification of mine accidents.
	FTZS 2367:2019/ ISO 19426-1:2018	Structures for mine shafts — Part 1: Vocabulary.
	FTZS 2368:2019/ ISO 19426-2:2018	Structures for mine shafts — Part 2: Headframe structures.
	FTZS 2369:2019/ ISO 19426-3:2018	Structures for mine shafts Part 3: Sinking stages.
	FTZS 2370:2019/ ISO 19426-4:2018	Structures for mine shafts Part 4: Conveyances.
	FTZS 2371:2019/ ISO 19426-5:2018	Structures for mine shafts Part 5: Shaft system structures.
	FTZS 892-1:2019	Polyethylene tanks for storage of potable water – part 1: specification.
	FTZS 892-2:2019	Polyethylene tanks for storage of potable water – part 2: test method.
	FTZS 2396:2019/ISO13811:2015	Tourism and related services -- Guidelines on developing environmental specifications for accommodation establishments.
	FTZS 2397:2019/ ISO18065:2015	Tourism and related services - Tourist services for public use provided by Natural Protected Areas Authorities – Requirements.
	FTZS2377:2019/ ISO 11485-1:2011(E)	Glass in building - Curved glass - Part 1: Terminology and definitions.
	FTZS 2378:2019/ ISO 11485-2:2011(E)	Glass in building - Curved glass - Part 2: Quality requirements.
	FTZS 2379:2019/ ISO 11485-3:2014(E)	Glass in building - Curved glass - Part 3: Requirements for curved tempered and curved laminated safety glass.
	FTZS 2381:2019/ ISO 12540:2017(E)	Glass in building - Tempered soda lime silicate safety glass.
	FTZS 2382:2019/ ISO 12543-1:2011(E)	Glass in building - Laminated glass and laminated safety glass - Part 1: Definitions and description of component parts.
	FTZS 2383:2019/ ISO 12543-2:2011(E)	Glass in building - Laminated glass and laminated safety glass - Part 2: Laminated safety glass.
	FTZS 2384:2019/ ISO 12543-3:2011(E)	Glass in building - Laminated glass and laminated safety glass - Part 3: Laminated glass.
	FTZS 2385:2019/ ISO 12543-4:2011(E)	Glass in building - Laminated glass and laminated safety glass - Part 4: Test methods for durability.
	FTZS 2386:2019/ ISO 12543-5:2011(E)	Glass in building - Laminated glass and laminated safety glass - Part 5: Dimensions and edge finishing.
	FTZS 2387:2019/ ISO 12543-6:2011(E)	Glass in building - Laminated glass and laminated safety glass - Part 6: Appearance.
	FTZS 2389:2019/ ISO 16293-1:2008(E)	Glass in building - Basic soda lime silicate glass products - Part 1: Definitions and general physical and mechanical properties.
	FTZS 2390:2019/ ISO 16293-2:2017(E)	Glass in building - Basic soda lime silicate glass products - Part 2: Float glass.
	FTZS 2392:2019/ISO 8269-1985	Door sets – Static loading test.
	FTZS 2393:2019/ISO 8271-2005	Door leaves — Determination of the resistance to hard body impact.
	FTZS 2394:2019/ISO 9381-2005	Hinged or pivoted doors -- Determination of the resistance to static torsion.
	FTZS 2395:2019/ISO 8274-2005	Windows and doors - Resistance to repeated opening and closing -- Test method.
	FTZS 794:2019/ISO 9652-2:2000	Masonry - Unreinforced Masonry design by simple rules.
	FTZS 1512 :2019 /EAS 179: 2012	Precast Concrete paving blocks - Specification.

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	FTZS 48:2019/EAS 14:2018	Fat spreads and blended spreads-Specification.
	FTZS 1654:2019	Liqueur- Specification.
	FTZS 665:2019	Fruit flavored alcoholic Beverage-Specification.

	FTZS 1256:2019	Non-cereal based alcoholic beverage –Specification.
	FTZS 2228:2018/ARS 1106:2018	Tilapia production aquaculture farms-good aquaculture practices.
	FTZS 2229:2018/ ARS 1107:2018	Fresh water aquatic animal production farms-good aquaculture farms-good aquaculture practices.
	FTZS 2331:2019	Pumpkin flour –specification.
	FTZS 390:2019	Carbonated soft drinks-specification.
	FTZS 2330:2019	sugar free carbonated soft drinks-specification.
	FTZS 1082:2018/ARS 834:2017	Dried Banana-Specification.
	FTZS 2332:2019	Black Currant-Specification.
	FTZS 2314: 2018/ARS 825(E):2016	Yams – Specification.
	FTZS 2315:2018/ARS 836(E):2016	Fresh Bitter Cassava – Specification.
	FTZS 2316:2018/ARS 837(E):2016	Fresh Cassava leaves – Specification.
	FTZS 2317:2018/ARS 845(E):2016	Production and handling of fresh cassava – code of practice.
	FTZS 2318:2018/ARS 848(E):2016	Production and handling of fresh ware potatoes – code of practice.
	FTZS 2319:2018/ARS 849(E):2016	Reduction of acrylamide in potato products - Code of practice.
	FTZS 2321:2018/ARS 854(E):2016	Gari- Specification.
	FTZS 2322:2018/ARS 855(E):2017	Fresh Tannia – Specification.
	FTZS 2323:2018/ARS 856(E):2017	Fresh dasheen/Taro – Specification.
	FTZS 2313:2018/ARS 467(E):2016	Degermed maize meal and maize grits – Specification.
	FTZS 2320:2018/ARS 1101(E):2018	Production and handling oof maize (corn) grains – Good Agricultural Practices.
	FTZS 845: 2019	Air Quality-Specifications.
	FTZS 836: 2019	Air Quality- Vocabularies.
	FTZS 983: 2019	Air Quality- Vehicular exhaust emission limits.
	FTZS 860:2019	Municipal and Industrial wastewater: General tolerance limits.
	FTZS 2335:2019	Tolerance limits for industrial effluents discharged into land and receiving water bodies: Oil and gas.
	FTZS 2336:2019	Acoustic- general tolerance limits for underwater noise.
	FTZS 2337:2019/ISO 18406:2017	Underwater acoustics – Measurements of radiated underwater sound from percussive pile diving.
	FTZS 2338:2019/ISO 18405:2017	Underwater acoustics- Terminology.
	FTZS 2339:2019/ISO 17208-1:2016	Quantities and procedures for description and measurement of underwater sound from ships - Part 1: Requirements for precision measurements in deep water used for comparison purposes.
	FTZS 2333: 2019	Code of Hygienic Practice for the Production, Packaging, Transportation, Storage and Sale of Iodated Salt.
	FTZS 2334: 2019	Guideline for internal monitoring of iodized salt in small scale operations.
	FTZS 2348:2019	Paints and varnishes — Determination of brush and roller application properties.
	FTZS 2349:2019	Paints and varnishes — Determination of viscosity by means of a Stormer viscometer.

	FTZS 2350:2019	Paints and varnishes — Daylight 45°, 0° luminous directional reflectance of surface coatings and pigments.
	FTZS 2351:2019	Water based undercoat – specification.
	FTZS 2352:2019	Aluminium finishing paint – Specification.
	FTZS 2353:2019	Adhesives - Ethyl and methyl cyanoacrylate – Specification.
	FTZS 2354:2019/ISO 10993-17:2002	Biological evaluation of medical devices-Part 17: Establishment of allowable limits for leachable systems.
	FTZS 2355:2019/ISO 10993-18:2005	Biological evaluation of medical devices-Part 18: Chemical characterization of materials.
	FTZS 2356:2019/ISO 10282:2014	Single use sterile surgical rubber gloves-Specification.
	FTZS 2357:2019/ISO 11193-1:2008	Single use medical examination gloves-Part 1: Specification for gloves made from rubber latex or rubber solution.
	TZS 462: 2019/ ISO 48:2010	Rubber, vulcanized- Determination of hardness (Hardness between 30 and 85 IRHD) (Revision of TZS 462:1992).
	TZS 463:2019/ ISO 471:1995	Rubber - Standard temperatures, humidities and times for the conditioning and testing of test pieces (Revision of TZS 463:1992).
	TZS 2376:2019 / ISO 2393:2014	– Rubber test mixes - Preparation, mixing and vulcanization - Equipment and procedures.

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	FTZS 2212-11:2019/ISO 17892-11-2019	Geotechnical investigation and testing — Laboratory testing of soil — Part 11: Permeability tests
	FTZS 2500-1:2019/ISO 14688-1-2017 -	Geotechnical investigation and testing — Identification and classification of soil —Part 1: Identification and description
	FTZS 2501:2019/ISO 14689-2017	Geotechnical investigation and testing — Identification, description and classification of rock
	FTZS 2502-12:2019/ISO 22476-12-2009	Geotechnical investigation and testing —Field testing —Part 12: Mechanical cone penetration test (CPTM)
	FTZS 2503:2019/ ISO 30500:2018-	Non-Sewered sanitation Systems — Prefabricated Integrated Treatment Units— General safety and Performance Requirements for Design and testing
	FTZS 2504:2019/ ISO 24521:2016-	Activities relating to drinking water and wastewater services — Guidelines for the management of basic on-site domestic wastewater services
	FTZS 2505:2019/ EN 13310:2015	Kitchen sinks— Functional requirements and test methods
	FTZS 2506:2019/ EN 695:2005	Kitchen Sinks—Connecting dimensions
	FTZS 2464:2019/EAS 94:2002	Burnt clay building blocks — Specification
	FTZ 952:2019	Concrete pipes and fittings, unreinforced, Steel fibre and reinforced
	FTZ 953-1:2019	Concrete pipes and ancillary concrete products – Part 1: Specification for unreinforced and reinforced concrete pipes (including jacking pipes) and fittings with flexible joints
	FTZS 953-2:2019	Concrete pipes and ancillary concrete products - Part 3: Specification for unreinforced and reinforced concrete manholes and soak aways
	FTZS 953-3:2019	Concrete pipes and ancillary concrete products-Part 3: Specification for unreinforced and reinforced concrete inspection chambers

	FTZS 953-4:2019	Concrete pipes and ancillary concrete products — Part 4: Specification for prestressed non-pressure pipes and fittings with flexible joints
	FTZS 1062:2019	Concrete manholes and inspection chambers, unreinforcedi) , steel fibre and reinforced
	FTZS 589:2019	Methods of test for pozzolanic materials
	FTZS 590:2019	Glossary of terms relating to pozzolana
	FTZS 256-1: 2019	Timber – Dimensions for coniferous sawn timber (Cypress and Pine)
	FTZS 387:2019	Timber—strength grading of coniferous sawn timber (Cypress and pine) for structural use

	FTZS 2398-1:2019/ IEC 60898 – 1:2015	Electrical accessories-Part 1: Circuit breakers for overcurrent protection for household and similar installations-Part 1: Circuit breaker for AC operation.
	FTZS 287-501:2019/ IEC 60811 – 501:2012	Electric and optical fibres cables-Test methods for non-metallic compounds part 501: Mechanical tests-Tests for determining the mechanical properties of insulating and sheathing compounds
	FTZS 2399:2019	Copper rods and bars for electrical purposes-Specification
	FTZS 375-6:2019/ IEC 60034 – 6:1991	Rotating electrical machines-Part 6: Methods of cooling (IC code)
	FTZS 375-2-1:2019/ IEC 60034 – 2 – 1:2014	Rotating electrical machines-Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)
	FTZS 285:2019	Fluids for electro technical applications-Unused mineral insulating oils for transformers and switchgear
	FTZS 614-22:2019/ IEC 60670 – 22:2015	Boxes and enclosures for electrical accessories for household and similar fixed electrical installation-Part 22: Particular requirements for connecting boxes and enclosures
	FTZS 614-1:2019/ IEC 60670 – 1:2015	Boxes and enclosures for electrical accessories for household and similar fixed electrical installations-Part 1: General requirements
	FTZS 375-5:2019/ IEC 60034 – 5:2006	Rotating electrical machines-Degree of protection provided by the integral design of rotating electrical machines (IP code)-Classification
	FTZS 2400-3:2019/ ISO/ IEC 15457 – 3:2008	Identification cards-Thin flexible cards-Part 3: Part 3: Test method
	FTZS 2401:2019/ ISO/IEC 27032:2012	Information technology-Security Techniques-Guidelines for cybersecurity
	FTZS 2402:2019 ISO/IEC 7810:2003	Identification cards-Physical characteristics
	FTZS 2400-1:2019/ ISO/IEC 15457-1:2008	Identification cards-Thin flexible cards-Part 1: Physical characteristics
	FTZS 2403-1:2019/ ISO/IEC 18328-1:2015	Identification cards-ICC-managed devices-Part 1: General framework

	FTZS 2404-1:2019/ ISO/IEC 7816-1:2011	Identification cards-Integrated circuit cards-Part 1: Cards with contacts-Physical characteristics
	FTZS 2405-2:2019/ ISO/IEC 17839-2:2015	Information technology-Biometric System-on-card-Part 2: Physical characteristics
	FTZS 2403-2:2019 /ISO/IEC18328-2:2015	Identification-cards-ICC managed devices-Part 2: Physical characteristics and test methods for cards with devices
	FTZS 1223-1:2019/ IEC 60947-1:2014	Low voltage switchgear and control gear-Part 1: General rule
	FTZS 2406-1:2019/ IEC 61724-1:2017	Photovoltaic system performance-Part 1: Monitoring
	FTZS 2410:2019/ IEC 62509:2010	Battery charge controllers for photovoltaic systems-Perfomance and functions
	FTZS 2406-3:2019/ IEC 61724-3:2016	Photovoltaic system performance-Part 3: Energy evaluation method
	FTZS 970:2019/ IEC 61829:2015	Photovoltaic (PV) array-On-site measurement of current voltage characteristics
	FTZS 1952-9-5:2019 / IEC TS 62257-9-5:2018	Recommendation for renewable energy and hybrid systems for rural electrification-Part 9-5: Integrated Systems-Laboratory evaluation of stand-alone renewable energy products for rural electrification Safety of power converter for use in PV systems Part 1: General requirements
	FTZS 2408:2019 / IEC 62093:2005	Balance of system components for photovoltaic systems-Design qualification natural environments
	FTZS 2407-1:2019 / IEC 62109-1:2010	Safety of power converter for use in PV systems Part 1: General requirements
	FTZS 2407-2:2019 IEC 62109-2:2010	Safety of power converter for use in PV systems Part 2: Particular requirements for inverters

	FTZS 448-2-80:2019/ IEC 60335-2-80:2015	Household and similar electrical appliances – Safety – Part 2-80: Particular requirements for fans.
	FTZS 521-1:2019 IEC 60060-1:2010	High voltage test techniques – Part 1 - General definition and test requirements
	FTZS 521-2:2019 IEC 60060-2:2010	High voltage test techniques – Part 2: Measuring systems
	FTZS 521-3:2019 IEC 60060-3:2010	High voltage test techniques - Definition and requirement for on -site testing
	FTZS 228-0-1:2019/ IEC 60317-0-1:2013	Specification for particular types of winding wires - Part 0-1: General requirements - Enamelled round copper wire

	FTZS 228-4:2019/ IEC 60317-4:2015	Specification for particular types of winding wires -Part 4: Solderable polyurethane enamelled round copper wire
	FTZS 228-8:2019/ IEC 60317-8:2010	Specification for particular types of winding wires -Part 8: Polyesterimide enamelled round copper wire
	FTZS 228-46:2019/ IEC 60317-46:2013	Specification for particular types of winding wires -Part 46: Aromatic polyimide enamelled round copper wire
	FTZS 228-1:2019/ IEC 60317-1:2010	Specification for particular types of winding wires - Part 1: Polyvinyl acetal enamelled round copper wire
	FTZS 234:2019	Voltages for A.C. transmission and distribution systems-Specification
	FTZS 611-2:2019	13A plugs, socket outlets, adaptors and connection units— Part 2: Specification for 13A switched and unswitched socket outlets
	FTZS 611-1:2019	13A plugs, socket-outlets, adaptors and connection units — Part 1: Specification for rewirable and non-rewirable 13 A fused plug
	FTZS 611-4:2019	13A plugs, socket-outlets, adaptors and connection units — Part 4: Specification for 13 A fused connection units switched and unswitched
	FTZS 2467-1:2019/ ISO/IEC 11801-1:2017	Information technology – Generic cabling for customer premises – General requirements
	FTZS 2466:2019	Interoperability specifications of common external power supply (EPS) for use with data-enabled mobile telephones
	FTZS 2465-1:2019/ IEC 63032-1:2018	Low-frequency cables and wires with PVC insulation and PVC sheath - Part 1: General test and measuring methods
	FTZS 2468-22:2019/ IEC 60950-22:2016	Information technology equipment - Safety - Part 22: Equipment to be installed outdoors

	FTZS 2368:2019	Determining Rock Quality Designation (RQD) of Rock Core - Test Method.
	FTZS 2369:2019	Field logging for subsurface explorations of soil and rock – code of practice.
	FTZS 2370:2019	Transportation and preservation of soil samples – code of practice

	FTZS 2371:2019/ISO 18875:2015	Coalbed methane exploration and development — Terms and definitions.
	FTZS 2452:2019/ISO 18871:2015	Method of determining coalbed methane content.
	FTZS 2457-1:2019/ISO 8858-1:1990	Hard coal -- Froth flotation testing -- Part 1: Laboratory procedure.
	FTZS 2457-2:2019/ISO 8858-2:2004	Hard coal -- Froth flotation testing -- Part 2: Sequential evaluation.
	FTZS 2457-3:2019/ISO 8858-3:2004	Hard coal -- Froth flotation testing -- Part 3: Release evaluation.
	FTZS 2458-1:2019/ISO 10086-1:2000	Coal -- Methods for evaluating flocculants for use in coal preparation -- Part 1: Basic parameters.
	FTZS 2459:2019/ISO 8833:1989	Magnetite for use in coal preparation - Test methods.
	FTZS 2460:2019/ ISO 8653:2016	Jewellery — Ring-sizes — Definition, measurement and designation.
	FTZS 2461:2019/ISO 8654:2018	Jewellery — Colors of gold alloys — Definition, range of colors and designation.
	FTZS 2462:2019/ISO 10713:1992	Jewellery - Gold alloy coatings
	FTZS 2463:2019/ISO 11426:2014	Jewelry — Determination of gold in gold jewelry alloys — Cupellation method (fire assay).
	FTZS 2453:2019/ ISO 11790:2017	Copper, lead, zinc and nickel concentrates - Guideline for the inspection of mechanical sampling systems
	TZS 2454:2019/ISO 12743:2018	Copper, lead, zinc and nickel concentrates - Sampling procedures for determination of metal and moisture content.
	FTZS 2455:2019/ ISO 11794:2017	Copper, lead, zinc and nickel concentrates - Sampling of slurries.
	FTZS 2456:2019/ISO 10378:2016	Copper, lead and zinc sulfide concentrates - Determination of gold and silver — Fire assay gravimetric and flame atomic absorption spectrometric method
	FTZS 2544-2:2019	Solid biofuels — Fuel specifications and classes — Part 2: Graded wood pellets
	2544-3:2019	Solid biofuels — Fuel specifications and classes — Part 3: Graded wood briquettes
	2545-1:2019	Equipment for harvesting - Combines and functional components - Part 1- Vocabulary
	2545-2:2019	Equipment for harvesting - Combines and functional components – Part2- Assessment of characteristics and performance defined in vocabulary
	2546-1:2019	Forage harvesters - Part 1- Vocabulary
	2546-2:2019	Forage harvesters -Part 2: Specification of characteristics and performance

	2546-3:2019	Forage harvesters -Part 3: Test method
	2547:2019	Harvesting equipment — Blades for agricultural rotary mowers — Requirements
	2548:2019	Agricultural machinery — Rotary disc mowers, rotary drum mowers and flail mowers — Test methods and acceptance criteria for protective skirts
	2549:2019	Steels for the reinforcement and prestressing of concrete — Certification scheme for steel bars and wires
	2550-1:2019	Wrought aluminium and aluminium alloys — Sheets, strips and plates — Part 1: Technical conditions for inspection and delivery.
	2550-2:2019	Wrought aluminium and aluminium alloys — Sheets, strips and plates — Part 2: Mechanical properties.
	2550-3:2019	Wrought aluminium and aluminium alloys — Sheets, strips and plates — Part 3: Strips: Tolerances on shape and dimensions.
	2550-4:2019	Wrought aluminium and aluminium alloys — Sheets, strips and plates — Part 4: Sheets and plates: Tolerances on shape and dimensions.
	2550-5:2019	Wrought aluminium and aluminium alloys — Sheets, strips and plates — Part 5: Chemical composition.
	2551:2019	Equipment for harvesting - Combine harvesters - Test procedure
	FTZS 787:2019	Packaging: Insulated container and vacuum ware for domestic use- specifications

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	FTZS 2411:2019/ISO 21569: 2005	Foodstuffs- Methods of analysis for the detection of genetically modified organisms and derived products- Qualitative nucleic acid-based methods.
	FTZS 2412:2019/ISO 21570:2005	Foodstuffs - Methods of analysis for the detection of genetically modified organisms and derived products - Quantitative nucleic acid-based methods
	FTZS 2413:2019/ISO 21571:2005	Foodstuffs- Methods of analysis for the detection of genetically modified organisms and derived products- Nucleic acid extraction.
	FTZS 2414: 2019/ISO 24276:2006	Foodstuffs- Methods of analysis for the detection of genetically modified organisms and derived products- General requirements and definitions
	FTZS 484:2019/ISO 6658:2017	Sensory analysis -methodology-General guidance
	FTZS 487:2019/ISO 8589:2007	Sensory analysis -General guidance for the designs of test rooms
	FTZS 2429:2019/ISO 5496:2006	Sensory analysis -Methodology -Initiation and training of assessors in the detection of recognition of odours

	FTZS 2430:2019/ISO 11037:2011	Sensory analysis-Guidelines for sensory assessment of the colour of products
	FTZS 2431:2019/ISO 5492:2008	Sensory analysis vocabulary
	FTZS 594:2019/ISO 4120:2004	Sensory analysis-Methodology-Triangle test
	FTZS 593:2019/ISO 4121:2003	Sensory analysis-Methodology-method of investigating sensitivity of taste
	FTZS 485:2019/ISO 4121:2003	Guidelines for the use of quantitative response scale
	FTZS 486:2019/ISO 5497:1982	Sensory analysis methodology-Guidelines for the preparation of samples for which direct sensory analysis is not feasible
	FTZS 2432:2019/ISO 16779:2015	Sensory analysis-assessment (determination and verification) of the shelf life of foodstuffs
	FTZS 2433:2019/ISO 13302:2003	Sensory analysis -methods of assessing modification to the flavor of foodstuffs due to packaging
	FTZS 2434:2019/ISO 11136:2014	Sensory analysis-methodology-General guidance for conducting hedonic test with consumers in a controlled area
	FTZS 2435:2019/ISO 11132:2012	Sensory analysis-methodology-Guidelines for monitoring the performance of a quantitative sensory panel
	FTZS 2436:2019/ISO 8586:2012	Sensory analysis -general guidance for the selection, training and monitoring of selected assessors and expert sensory assessors
	FTZS 2437:2019/ISO 11035:1994	Sensory analysis-Identification and selection of descriptors for establishing a sensory profile by a multidimensional approach
	FTZS 2438:2019/ISO 13299:2016	Sensory analysis- Methodology-General guidance for establishing a sensory profile
	FTZS 2439:2019/ISO 11036:1994	Sensory analysis-Methodology -Texture profile
	FTZS 121:2019	Method for microbiological examination of Clostridium botulinum and Clostridium botulinum toxin in food stuffs
	FTZS 403:20019/ISO 21567: 2004	Microbiology of food and animal feeding Stuffs- Horizontal method for the detection of Shigella spp
	FTZS 730-3:2019/ISO 16649-3:2015	Microbiology of the food chain - Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli - Part 3: Detection and most probable number technique using 5-bromo-4-chloro-3-indolyl-ß-D-glucuronide
	FTZS 1183:2019/ISO 6887-4:2017	Microbiology of the food chain -- Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 4: Specific rules for the preparation of miscellaneous products
	FTZS 730-1:2019/ISO 16649-1:2018	Microbiology of the food chain- Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli- Part 1: Colony-count technique at 44 degrees C using membranes and 5-bromo-4-chloro-3-indolyl beta-D-glucuronide

	FTZS 951:2019/ISO 18593:2018	Microbiology of the food chain- Horizontal methods for surface sampling
	FTZS 1182:2019/ISO 6887-3:2017	Microbiology of the food chain - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination- Part 3: Specific rules for the preparation of fish and fishery product
	FTZS 2420: 2019/ISO 6887-6:2013	Microbiology of food and animal feed- Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 6: Specific rules for the preparation of samples taken at the primary production stage
	FTZS 2421:2019/ISO 10273:2017	Microbiology of the food chain- Horizontal method for the detection of pathogenic Yersinia enterocolitica
	FTZS 2422:2019/ISO 22964	Microbiology of the food chain- Horizontal method for the detection of Cronobacter spp
	FTZS 2423:2019/ISO 18743:2015	Microbiology of the food chain- Detection of Trichinella larvae in meat by artificial digestion method
	FTZS 2424-1:2019/ISO 15216-1:2016	Microbiology of the food chain- Horizontal method for determination of hepatitis A virus and norovirus using real-time RT-PCR-Part 1: Method for quantification
	FTZS 2425:2019/ISO 16654:2001	Microbiology of food and animal feeding stuff- Horizontal method for the detection of Escherichia coli O157
	FTZS 2426-1:2019/ISO 21527-1:2008	Microbiology of food and animal feeding stuff - Horizontal method for the enumeration of yeasts and moulds - Part 1: Colony count technique in products with water activity greater than 0,95
	FTZS 2426-2:2019/ISO 21527-1:2008	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of yeasts and moulds - Part 2: Colony count technique in products with water activity less than or equal to 0,95
	FTZS 2427:2019/ISO 21871:2006	Microbiology of food and animal feeding stuff - Horizontal method for the determination of low numbers of presumptive Bacillus cereus- MPN technique and detection method
	FTZS 2428:2019/17604:2015	Microbiology of food Chain-Carcass sampling for microbiological analysis
	TZS 2415:2019	Chilled and frozen ostrich meat - Specification
	TZS 2416:2019	Lamb and mutton carcass and meat cuts – Speciation
	TZS 2417:2019	Goat carcasses and meat cuts – specification
	TZS 2418:2019	Sausage – specification part 2: Chicken sausage
	TZS 2419:2019	Feed maize – specification
	TZS 738:2019	Maize gluten – Specification
	FTZS 2440:2019	Baker's Yeast – Specification

	FTZS 2441:2019	Baking Powder – Specification
	FTZS 2442:2019	Food grade aspartame –Specification
	FTZS 2443:2019	Food grade Saccharin – Specification
	FTZS 2444:2019	Sucralose – Specification
	FTZS 116:2019	Food Additives - Labelling
	FTZS 1769:2019	Aqueous Coconut milk and coconut cream products– Specification
	FTZS 53:2019	Edible cottonseed oil –Specification
	FTZS 52:2019	Edible coconut Oil-Specification
	FTZS 51:2019	Edible sesame seed Oil-Specification
	FTZS 2445:2019	Edible Palm kernel oil –Specification
	FTZS 1432:2019	Edible olive oil and Edible olive pomace oil-specification
	FTZS 2446:2019	Determination of the difference between actual and theoretical content of triacyglycerols with ECN 42 in olive oil
	FTZS 2447:2019/ISO 6800:1997	Animal and vegetable fats and oils -Determination of the composition of fatty acids in the 2-position of the triglyceride molecules
	FTZS 2499:2019	Pumpkin seeds–Specification
	FTZS 1314 -1:2019	Oilseeds-Determination of content of impurities
	FTZS 1314 - 2:2019	Oilseeds-Determination of moisture and volatile matter content
	FTZS 1314 -3:2019	Oilseeds-Determination of oil content (Reference method)
	FTZS 1314 -4:2019	Oilseeds-Determination of acidity of oils
	FTZS 972:2019	Soil quality- Limits for soil contaminants.
	FTZS 974:2019/ ISO 11047:1998)	Soil quality - Determination of Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Nickel and Zinc - Flame and electro thermal atomic absorption spectrometric methods
	FTZS 975:2019/ ISO 16772:2004-	Soil quality - Determination of Mercury in aqua regia soil extracts with cold-vapor atomic spectrometry or cold-vapor atomic fluorescence spectrometry
	FTZS 976:2019/ISO 11264:2005-	Soil quality - Determination of herbicides - method using HPLC with UV-detection.
	TZS 977:2019/ISO 10382:20020-	Soil quality - Determination of Organochlorine pesticides and Polychlorinated biphenyls - Gas-chromatographic method with electron capture detection.
	FTZS 2514:2019/ISO 13914:2013-	Soil quality -- Determination of dioxins and furans and dioxin-like polychlorinated biphenyls by gas chromatography with high-resolution mass selective detection (GC/HRMS).

	FTZS 2515:2019/ ISO 15192:2010-	Soil quality -- Determination of chromium (VI) in solid material by alkaline digestion and ion chromatography with spectrophotometric detection.
	FTZS 2516:2019/ ISO14256-2:2005	Soil quality -- Determination of nitrate, nitrite and ammonium in field-moist soils by extraction with potassium chloride solution -- Part 2: Automated method with segmented flow analysis.
	FTZS 2517:2019/ ISO/TR 18105:2014	Soil quality -- Detection of water soluble chromium (VI) using a ready-to-use test-kit method
	FTZS 2518:2019/ ISO 18227:2014	Soil quality -- Determination of elemental composition by X-ray fluorescence
	FTZS 973:2019/ ISO 15009: 2016	Soil quality - Gas chromatographic determination of the content of volatile Aromatic hydrocarbons, Naphthalene and volatile Halogenated hydrocarbons - Purge-and-trap method with thermal desorption.
	FTZS 979: 2019 /ISO 11262:2011-	Soil quality - Determination of Total Cyanide.
	FTZS 978:2019/ ISO 11074:2015	Soil quality – Vocabulary
	FTZS 652: 2011/ ISO 11464:2006	Soil quality – Pre\-treatment of samples for physical\-chemical analyses
	FTZS 836:2019	Air quality – General considerations – Part 2: Particle size fraction definitions for health-related sampling
	FTZS 837:2019	Air quality – Sampling and testing methods – Part 2: Sampling of gaseous pollutants
	FTZS 846:2019	Air Quality-Tolerance limits of emissions discharged to the air by cement factories
	FTZS 985:2019 / ISO 3929:2003	Road vehicles – Measurement methods for exhaust gas emissions during inspection or maintenance
	FTZS 986:2019	Instruments for measuring vehicle exhaust emissions
	FTZS 2529:2019	Air Quality- Environmental conditions for process measurements and control system: Airborne contaminants.
	FTZS 2533:2019-	Radiation protection: Specification for building enclosing Medical radiation facilities
	FTZS 2534:2019/ISO 12749-4:2015	Nuclear energy, nuclear technologies, and radiological protection -- Vocabulary -- Part 4: Dosimetry for radiation processing.
	FTZS 2535:2019/ ISO 717-1 (3rd Ed, 2013)	Acoustics – Rating of sound insulation in buildings and of building elements – Part 1: Airborne sound insulation
	FTZS 2536:2019/ISO 3746 (3rd Ed., 2010)	Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Survey method using an enveloping measurement surface over a reflecting plane
	FTZS 2537:2019/ISO 21940-11 (1st Ed., 2016)	Mechanical vibration — Rotor balancing — Part 11: Procedures and tolerances for rotors with rigid behaviour.
	FTZS 2538-3:2019/ ISO 10816-3 (2nd Ed., 2009)	Mechanical Vibration - Evaluation of machine vibration by measurements on non-rotating parts - Part 3 Industrial machines with normal power above 15kW and nominal speed between 120r/min and 15000 r/min when measured in situ
	FTZS 2538-6:2019/ISO 10816-6 (1st Ed., 1995)	Mechanical Vibration-Evaluation of machine vibration by measurements on non-rotating parts - Part 6 Reciprocating machines with power ratings above 100 kw

	FTZS 2540:2019/ ISO 3744 (3rd Ed., 2010)	Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure. Engineering method for an essentially free Field over a reflecting plane.
	FTZS 214: 2019	Textiles – Hospital cotton bed sheets – Specification
	FTZS 1263:1: 2019	Textiles - Woven bags made from natural fibres - Part 1: Bags for cereals and pulses – Specifications.
	FTZS 1263:2: 2019	Textiles – Woven bags made from natural fibres – Part 2: Bags for milled products – Specifications
	FTZS 1263:3: 2019	Textiles – Woven bags made from natural fibres – Part 3: Bags for sugar - Specifications
	FTZS 1354: 2019	Textiles – Masai Shuka Specifications.
	FTZS 1422: 2019	Textiles – Woven, non-woven, Knitted and Lace Household Curtain and Drapery fabrics – Specifications
	FTZS 1423: 2019	Textiles – Upholstery fabric Specification
	FTZS 1550: 2019	Textiles – Woven Handkerchief Performance – Specifications.
	FTZS 2507: 2019	Textiles – High Density Polyethylene (HDPE)/ Polypropylene (PP) Woven Sacks for packaging of flour (milled product) – Specifications.
	FTZS 2508: 2019	Textiles – High Density Polyethylene (HDPE)/ Polypropylene (PP) Woven Sacks for Packaging of 50kg/25kg sugar – Specifications.
	FTZS 2509: 2019	Textiles – High Density Polyethylene (HDPE)/ Polypropylene (PP) Woven Sacks for packing food grains – Specifications.
	FTZS 200: 2019/ISO 5391:1984	Leather – Determination of nitrogen content and “Hide substance” – Titrimetric method.
	FTZS 201:2019/ISO 3380: 2015	Leather – Physical and Mechanical tests – Determination of shrinkage tempereture up to 100°C.
	FTZS 202:2019/ISO 3378:2002	Leather – Physical and Mechanical tests – Determination of resistance to grain cracking and grain crack index.
	FTZS 203: 2019/ISO 2417: 2016	Leather – Physical and Mechanical tests – Determination of the static absorption of water.
	FTZS 204: 2019	Leather – Determination of Mildew Resistance (including wet – blue chrome).
	FTZS 298:2019/ISO 5398-1: 2018	Leather– Chemical determination of chromic oxide – Quantification by titration.
	FTZS 477: 2019	Textiles – Specification for shirting fabrics
	FTZS 689-1: 2019	Textiles – Woven fabrics for uniforms – Specification – Part 1: Fabrics made wholly or partly from cotton.
	FTZS 897: 2019	Textiles – Specification for woven fabrics used for suits, jackets, slacks, trousers and skirts
	FTZS 898: 2019	Textiles – Specification for school wear for boys and girls – Requirements for making school wear.
	FTZS 900-1: 2019	Textiles – Specification for knitted vests – Part 1 – Knitted vests for males.
	FTZS 900-2: 2019	Textiles – Specification for knitted vests – Part 2 – Knitted vests for females.

	FTZS 910: 2019	Textiles – Specification for woven cotton apparel fabrics
	FTZS 912: 2019	Textiles – Specification for T-shirts.
	FTZS 2511: 2019	Textiles- Specification for Treated/coated fabrics for various applications.
	FTZS 2512: 2019	Textiles – Specification for Non-woven cleaning wipes.
	FTZS 2513: 2019	Textiles – Specification for nylon fishing line.
	FTZS 2543: 2019	Textiles – Polypropylene (PP) Woven Mats – Specifications.
	FTZS 2541: 2019	Textiles – Specifications for polyester fishing nets.
	FTZS 2542: 2019	Textiles – Specification for polyester fishnet twine.
	FTZS 1009:2019	Herbal soap - Specification
	FTZS 2391:2019	Linear alkylbenzene - Specification
	FTZS 2519:2019/ ISO 758: 1976	Liquid chemical products for industrial use – Determination of density at 20 ^{0}C
	FTZS 2520:2019/ ISO 759: 1981	Volatile organic liquids for industrial use – Determination of dry residue after evaporation on water bath – General method
	FTZS 2521:2019/ ISO 2211:1973	Liquid chemical products - Measurement of colour in Hazen units (Platinum-cobalt scale)
	FTZS 2522:2019/ ISO 1388-2:1981	Ethanol for industrial use – Methods of test – Part 2: Detection of alkalinity or acidity to phenolphthalein
	FTZS 2523:2019/ ISO 1388-5:1981	Ethanol for industrial use – Methods of test – Part 5: Determination of aldehyde content – Visual colorimetric method
	FTZS 2524:2019/ ISO 1388-6:1981	Ethanol for industrial use – Methods of test – Part 6: Test for miscibility with water
	FTZS 2525:2019/ ISO 1388-7:1981	Ethanol for industrial use – Methods of test – Part 7: Determination of methanol content (methanol contents between 0.01 and 0.20 % (v/v)) - Photometric method
	FTZS 2526:2019/ ISO 1388-8:1981	Ethanol for industrial use – Methods of test – Part 8: Determination of methanol content (methanol contents between 0.10 and 1.5 % (v/v)) -Visual colorimetric method
	FTZS 2527:2019/ ISO 1388-12:1981	Ethanol for industrial use –– Methods of test - Part 12: Determination of permanganate time
	FTZS 2528:2019/ ISO 1388-1:1981	Ethanol for Industrial use - Methods of test - Part 1: General
	FTZS 586:2019	Lime (quick lime and hydrated) - Chemical industries – Specification (Revision of TZS 586: 2001)
	FTZS 2530:2019	Ethanol for Industrial use – Specification
	FTZS 2531:2019	Industrial denatured spirit – Specification
	FTZS 2490:2019 / ISO 23640:2011	In vitro diagnostic medical devices — Evaluation of stability of in vitro diagnostic reagents
	FTZS 2491:2019 / ISO 15197:2013	In Vitro diagnostic test systems for self-testing in managing diabetes mellitus.
	FTZS 2492:2019 / ISO 8359:1996	Oxygen concentrators for medical use —Safety requirements.
	FTZS 2493:2019 / ISO 13959:2014	Water for hemodialysis and related therapies.

	FTZS 2532:2019 (Ed.1.0)	Hospital based intravenous fluids production - Code of practice
	FTZS 2267:2018	General Purpose Natural Gas – Specification
	FTZS 2268:2018	Natural gas — Designation of the quality of natural gas as a compressed fuel for vehicles
	FTZS 2269:2018	Natural gas – Determination of sulfur compounds – Part 5: Lingener combustion method
	FTZS 2270:2018	Gas analysis – Determination of the water dew point of natural gas – Cooled surface condensation hygrometers
	FTZS 2271:2018	Natural gas — Determination of composition with defined uncertainty by gas chromatography – Part 3: Determination of hydrogen, helium, oxygen, nitrogen, carbon dioxide and hydrocarbons up to C8 using two packed columns
	FTZS 2272:2018	Natural gas — Calculation of calorific values, density, relative density and Wobbe Index from composition
	FTZS 2273 Part 2:2018	Natural gas — Determination of water by the Karl Fischer method - Part 2: Titration procedure
	FTZS 2273 Part 3:2018	Natural gas — Determination of water by the Karl Fischer method - Part 3: Coulometric procedure
	FTZS 2274:2018	Natural Gas – Sampling Guidelines
	FTZS 2275:2018	Natural gas – Gas chromatographic requirements for hydrocarbon dewpoint calculation
	FTZS 2277:2018	Natural gas - Determination of sulfur compounds using gas chromatography
	FTZS 2277:2018	Standard Specification for Methane Thermophysical Property Tables

Training

Short Course Training

During the period of January to June, 2019, the Bureau continued to implement its short course training programme. A summary of short course conducted during the period under review is indicated hereunder:

S/N	NAME OF COURSE	NUMBER OF EMPLOYEES ATTENDING
1	Induction Course and Vetting	43
2	Mafunzo juu ya namna ya kuzuia na kupambana na Rushwa mahala pa kazi	35
3	TOT Training for ISO/IEC 17025:2017	19
4	Training on Method Validation & Measurement Uncertainty for Chemistry	02
5	Proficiency for Human Resource (PHR)	01
6	Mafunzo ya saratani ya Matiti na Shingo ya Kizazi	55
7	Training on Analysis of Petroleum, petroleum products and Operation & Maintenance of CFR Engine at IIP Dehradun	01
8	Training on Administration of Workers Council and an Art of Negotiations	02
	Training on Public Procurement Act of 2011, Public Procurement Regulations of 2013 and its Amendments of 2016	17
9	Training on Critical Skills for Management of Confidential Registry in Public Officers	04
10	Training on method validation and uncertainty of measurement	20
11	Training on Calibration of machines and equipment's	01
12	Mafunzo juu ya namna ya kuhakiki njia za upimaji sampuli (Method Validation)	01
13	Mafunzo juu ya zoezi la ugezi wa vipima joto kwa nchi za kusini mwa Afrika (SADCMET TEMPERATURE ILC WORKSHOP)	01
14	Training on Industrial Supervisory Skills	01
15	Records Management, Office Management, Electronic Records and Customer Care & Complains handling course	04
16	Training on 1SO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories	16
17	Leadership and Change Management	01
18	Effective Office Management and Administration Skills course	02
19	Biomedical equipment repair and Maintenance	01
20	CPD Training on Ms Project Management	01
21	Training on quality management system internal auditors' course (ISO 9001:2015) conducted from from 06 - 09.05.2019 at TBS HQ Sponsored by TBS	15
22	Training on Green Chemistry 2019 IUPAC course conducted in Dar es salaam sponsored by TBS	10
23	Awareness Training on ISO /IEC 17021:2015 conducted in Dar es Salaam from 03.04.2019 to 04.04.2019 sponsored by TBS	06
24	Training on ISO 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories from 02.04.2019 to 04.04.2019 at Dar es Salaam sponsored by TBS.	06
25	Training on ISO 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories from 08.04.2019 to 10.04.2019 at Dar es Salaam sponsored by TBS	15
26	Training on Website Development, contents and template design using Joomla from 06.05.2019 to 10.05.2019 conducted at Arusha sponsored by TBS	02

27	Training on Laboratory Testing of Soil and Aggregates for Building and Civil works from 29th April to 11th May, 2019 at Mbeya sponsored by TBS	01
28	Training on IT Security Essential from 23.04.2019 to 30.04.2019 conducted at Mwanza sponsored by TBS	01
29	Mafunzo juu ya KAIZEN conducted at CBE from 10th to 12th 2019 at Dar es Salaam-self sponsored	03
30	Mafunzo kwa Vitendo ya upimaji wa vimelea vya maradhi kwenye bidhaa za Vipodozi yaliyofanyika nchini Nairobi kuanzia tarehe 23rd Juni -06th Julai 2019 kwa ufadhili wa TBS.	01
31	Training on Temperature I conducted from 24th -28th June, 2019 in South Africa sponsored by TBS	01
32	Mafunzo kuhusu kuhimarisha utoaji taarifa kuhusu usalama wa chakula kuanzia tarehe 20th to 22nd May,2019 nchini Addis Ababa- Ethiopia kwa ufadhili wa AU.	01
33	Training on Fiber Optic Cable conducted in Nairobi Kenya from 02nd -08th June, 2019 sponsored by TBS	01
34	Training on LPG Bulk Procurement System conducted in South Africa from 01st -12nd May 2019 sponsored by TBS	01
35	Training on Flow Measurement and Instrumentation conducted in Dubai from 29thApril-17th May 2019 sponsored by TBS	01
36	Training for Laboratory Personnel on Cement and Building Products Testing conducted in Germany from 04th -11th May 2019 sponsored BAM	01
	TOTAL	**294**

Newly recruited staff

During the period of January – June 2019, the Bureau recruited new employees as indicated in the following table:

S/N	EMPLOYEE NAME	DESIGNATION	DATE
	Aron Willison Nzallah	Drug Inspector II	12-Feb-19
	Martin Peter Shilla	Machine Operator I	6-May-19
	Prosper Elisande Godfrey	Standards Officer II	10-May-19
	Joseph Ephlaim Komba	Records Management Assist II	7-Jun-19
	Daniel David Sichone	Quality Assurance Officer II	27-Mar-19
	Makoye Sulwe Ngereya	Planning Officer II	1-Apr-19
	Magdalena Maliaki Sademaki	Quality Assurance Officer II	1-Feb-19
	Zakaria Mussa Massana	Driver	21-Jan-19
	Hussein Hamza Daffa	Driver	11-Feb-19
	Peter Stanislaus Simon	Inspection Technician II	12-Feb-19
	Fadhili Robini Mwaigwisya	Driver	13-Feb-19

Retirement

The following are the members of staff who have served the Bureau for many years and have retired.

S/N	Employee	Post	Date
	Seif Ufuru Dihile	Driver	2-Mar-19
	Anatory Makula Paul	Principal Office Assistant	21-Apr-19
	Wantongela Rehema Noel	Personal Secretary	27-Apr-19
	Gladys Yusto Manojela	Personal Secretary	26-Jun-19

Series of international standards

By Clare Naden

The Internet of Things has revolutionized our world by making everyday objects connected, intelligent and interactive. The Internet of Media Things allows media such as video and audio to join the party. A new series of ISO and IEC International Standards will enable the harmonized synchronization that is essential for this phenomenon to grow.

Internet of Media Things (IoMT) has the potential to change our world through massive-scale data exchange. But synchronization and interoperability are vital for this to work. ISO/IEC 23093, the series of International Standards for the Internet of Media Things developed by ISO and the International Electrotechnical Commission (IEC), provides the requirements and common language to enable media devices, applications and services to work together, outlining an architecture and specifications for the effective flow of data between media things.

The series provides a framework that can be used across technologies and national boundaries, enabling communication, storage, analysis, interpretation and retrieval of media big data emerging from large-scale IoMT devices. These standards therefore make it possible to realize large-scale interoperable IoMT applications.

The first two standards in the series have just been published and specify application programming interfaces (APIs) and the tools for use when it comes to the exchange of data between applications.

ISO/IEC 23093-2, Information technology – Internet of media things – Part 2: Discovery and communication API, specifies the APIs to discover media of things in the network, and communicate between them, along with APIs to facilitate transactions.

ISO/IEC 23093-3, Information technology – Internet of media things – Part 3: Media data formats and APIs, contains the tools to describe the data exchanged between media things, such as media sensors and analysers for their APIs.

A further two standards in the series, due to be published next year, will cover, respectively, architecture and reference software and conformance.

Teruhiko Suzuki, Chair of the ISO and IEC technical committee that developed the series of standards, said there are many areas where this technology can reduce costs and improve quality of life for people.

"In healthcare, for example, smart glasses that help the visually impaired to see better, or body sensors that help diabetics to better monitor their insulin levels, are just some of the many applications of this revolutionary technology," he said.

Other examples of where the development of this technology can help improve the world include intelligent firefighting with Internet Protocol (IP) surveillance cameras and various aspects of smart manufacturing.

The ISO/IEC 23093 series of standards was developed by ISO/IEC JTC 1, Information technology, subcommittee SC 29, Coding of audio, picture, multimedia and hypermedia information, the secretariat of which is held by JISC, ISO's member for Japan.

ISO/IEC 23093-2 and ISO/IEC 23093-3 are available from your national ISO member or through the ISO Store.

Retrived from https://www.iso.org/news/ref2449.html on 29/11/2019

So much more than a toilet: iso standards help transform lives on world toilet day

By Clare Naden

More than four billion people in the world live without safely managed sanitation, impacting not only their health but their dignity. Recognizing the critical need for new and accessible technologies to remedy this situation, ISO has a number of International Standards to support innovative solutions and truly transform lives.

"Leaving no one behind" is the theme of this year's World Toilet Day, an annual global event organized by UN Water on 19 November to raise awareness and inspire action to tackle the global sanitation crisis. It is also a key objective of the United Nations Sustainable Development Goals. This year's theme aims to demonstrate that a toilet is not just a toilet, but can save lives and dignity and provide opportunities.

Universal sanitation is also the intention of a number of ISO standards, recently published or in development,

which play a crucial role in enabling new sanitary solutions to flourish. These include revolutionary new technologies such as stand-alone sanitation systems that safely treat waste without the need to be connected to a traditional sewerage system. They provide the solution for safe and hygienic toilets where they are needed most.

ISO 30500, Non-sewered sanitation systems – Prefabricated integrated treatment units – General safety and performance requirements for design and testing, supports the development and growth of this technology. Use of the standard helps to demonstrate to manufacturers, governments, regulators and end users of non-sewered facilities that they are safe, reliable and of good quality, thus encouraging further investment in the development of even better toilets.

Another solution for clean sanitation in places that lack traditional water utilities and sewerage systems is the use of on-site domestic wastewater treatment systems. Installed and managed correctly, they can be a hygienic, low-cost way of disposing of wastewater. However, many local communities lack the necessary knowledge and resources to set this up.

ISO 24521, Activities relating to drinking water and wastewater services – Guidelines for the management of basic on-site domestic wastewater services, offers the practical guidance required for designing and building such facilities as well as training up the people who are destined to use them.

Work is also underway on a standard for prefabricated systems that can not only treat human waste, but turn it into useful resources such as clean drinking water. ISO 31800, Faecal sludge treatment units – Energy independent, prefabricated, community-scale, resource recovery units – Safety and performance requirements, specifies requirements and test methods to ensure the performance and safety of units that can serve up to a hundred thousand people. Developed by an ISO expert committee in partnership with the Bill & Melinda Gates Foundation, it is due to be published sometime next year.

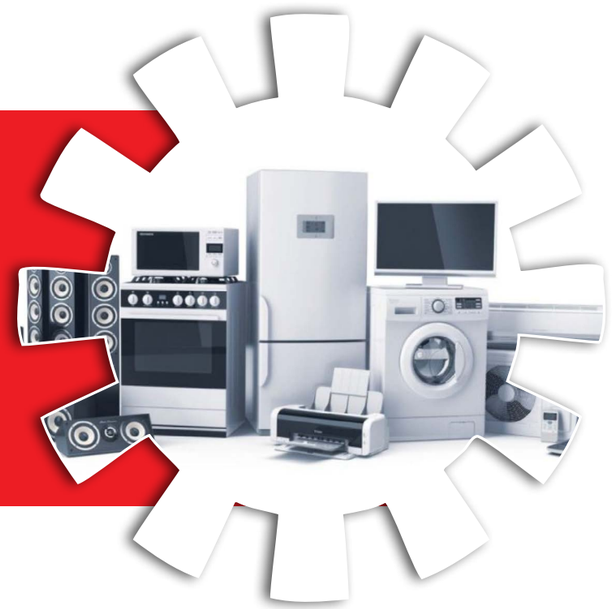
These are just some examples of where international expertise has come together to develop best-practice guidelines supporting solutions to the toilet problem. They also contribute directly to the United Nations Sustainable Development Goal 6 for clean water and sanitation, ensuring everyone has access to basic hygiene facilities by 2030.

Find out more about World Toilet Day on UN Water's dedicated Website.

For more information about ISO standards for safe sanitation, contact your national ISO member or visit the ISO Store.

Retrived from https://www.iso.org/news/ref2455.html on 29/11/2019

FOR SAFETY AND HIGHER EFFICIENCY, ALWAYS BUY TBS-MARKED/CERTIFIED ELECTRICAL APPLIANCES



Tested product certificates

During the period of January – June 2019, various manufacturers were granted tested products certificates as indicated in the following table:

LIST OF LICENCE ISSUED FOR THE PERIOD FROM JANUARY TO JUNE 2019

L/N	NAME	REGION	COUNTRY	PRODUCT	BRAND	STANDARD	GRANTED	YEAR	NORM/SME
2242	UR HOME COMPANY LTD	DAR ES SALAAM	LOCAL	SYNTHETIC DETERGENT	NICE ONE	TZS 39	MARCH	2019	NORMAL
2243	NJOMBE MILK FACTORY CO. LTD	NJOMBE	SME	YOGHURT		TZS 307:2009	JANUARY	2019	SME
2244	MAVUNO PRODUCTS LTD	KAGERA	SME	HONEY	MAVUNO	TZS 851:2006	JANUARY	2019	
2245	WORKER BEES AFRICA	DAR ES SALAAM	SME	HONEY	WORKER BEES AFRICA	TZS 851:2006	JANUARY	2019	SME
2246	SAYONA DRINKS LTD	DAR ES SALAAM	NORMAL	ENERGY DRINK	SAYONA PAWA	TZS 838:2004	JANUARY	2019	NORMAL
2247	ROYAL SOAP AND DETERGENT INDUSTRIES LIMITED	DAR ES SALAAM	NORMAL	DISH WASHING LIQUID DETERGENT	MO-LIME&MO-LEMON	TZS 581:2014/ EAS 296:11	JANUARY	2019	NORMAL
2248	DARSH INDUSTRIES LTD - IRINGA PLANT	IRINGA	NORMAL	TOMATA CONCENTRATE	REDGOLD	TZS 87:2013	JANUARY	2019	NORMAL
2249	UR HOME COMPANY LTD	DAR ES SALAAM	LOCAL	TOILET PAPER	NICE ONE	TZS 651: 2014/ EAS 355: 2004	JANUARY	2019	NORMAL
2250	TRUE BELL INDUSTRIES LTD	DAR-ES-SALAAM	LOCAL	BRANDY	SUKE	TZS 940/ EAS143	FEBRUARY	2019	NORMAL
2251	TRUE BELL INDUSTRIES LTD	DAR-ES-SALAAM	LOCAL	PORTABLE SPIRIT	BONANZA	TZS 468/ EAS 109	FEBRUARY	2019	NORMAL
2252	WOISO ORIGINAL PRODUCTS	DAR-ES-SALAAM	LOCAL	CLOSED REUSABLE TRANSPORT CONTAINER		TZS 1728	FEBRUARY	2019	NORMAL
2253	ASAS DAIRIES LTD	IRINGA	LOCAL	CULTURED MILK	ASAS MTINDI	TZS 1625	FEBRUARY	2019	NORMAL
2254	I CAN GO ON PLUS COMPANY	DAR-ES-SALAAM	LOCAL	NON-CERIAL BASED ALCOHOL BEVERAGE	NGUVU	TZS 1256	FEBRUARY	2019	SME
2255	LAKE LUBES LTD	DAR ES SALAAM	LOCAL	AUTOMOTIVE GEAR OIL	LAKE GL-5 80W90 & LAKE GL-5 85W140	TZS 675	FEBRUARY	2019	NORMAL
2256	LAKE LUBES LTD	DAR ES SALAAM	LOCAL	HYDRAULIC OIL	HYDRAULIC OIL-HYDROTECH 32AW, HYDROTECH 46AW, HYDROTECH 68AW & 100AW	TZS 1072	FEBRUARY	2019	NORMAL
2257	LAKE LUBES LTD	DAR ES SALAAM	LOCAL	AUTOMATIC TRANSMISSION FLUID	LAKE LUBES ATF DII	TZS 1691	FEBRUARY	2019	NORMAL
2258	GRAIN AFCO FAMILY BAKERY	DAR ES SALAAM	LOCAL	WHITE BREAD	STAR	TZS 102/ EAS 43	FEBRUARY	2019	SME
2259	STERLING SURFACTANTS LTD	ARUSHA	LOCAL	SHAMPOO	ZENA, BODY WASH & STERLING	TZS 317	FEBRUARY	2019	NORMAL
2260	STERLING SURFACTANTS LTD	ARUSHA	LOCAL	LIQUID TOILET SOAP	SHOWER GEL	TZS 879	FEBRUARY	2019	NORMAL
2261	STERLING SURFACTANTS LTD	ARUSHA	LOCAL	LIQUID HAND WASH	Q19, Q32 & Q49 STERLING AND STERLING DEXI	TZS 1779-1/ EAS 812-1	FEBRUARY	2019	NORMAL

2262	STERLING SURFACTANTS LTD	ARUSHA	LOCAL	DISH WASHING LIQUID DETERGENT	ZOA, DEXI & ALL- PURPOSE CLEANER	TZS 624/ EAS 383	FEBRUARY	2019	NORMAL
2263	STERLING SURFACTANTS LTD	ARUSHA	LOCAL	LIQUID HANDWASH LAUNDRY DETERGENTS	PINTO PUNTA & FABRIC WASH	TZS 1782-1/ EAS 816	FEBRUARY	2019	NORMAL
2264	STERLING SURFACTANTS LTD	ARUSHA	LOCAL	DISINFECTANTS	SPARKLEAN	TZS 801	FEBRUARY	2019	NORMAL
2265	STERLING SURFACTANTS LTD	ARUSHA	LOCAL	LIQUID DETERGENT FOR HAND DISHWASHING	ZITA	TZS 581/ EAS 296	FEBRUARY	2019	NORMAL
2266	INTERNATIONAL DAIRY PRODUCTS LTD	DAR	LOCAL	CULTURED MILK	SERENGETI	TZS 307:2009	FEBRUARY	2019	SME
2267	MATABITHA FOOD PROCESSORS	DODOMA	LOCAL	NUTRITIOUS FLOUR	MATABITHA	TZS1607/ EAS 782 FEBRUARY		2019	SME
2268	MATABITHA FOOD PROCESSORS	DODOMA	LOCAL	CASSAVA FLOUR	MATABITHA	TZS 466/ EAS 740	FEBRUARY	2019	SME
2269	ASAS DAIRIES LTD	IRINGA	LOCAL	UHT MILK	ASAS	TZS 398	FEBRUARY	2019	NORMAL
2272	DEDO INVESTMENT COMPANY	ARUSHA	LOCAL	NON-CEREAL BASED ALCOHOLIC BEVERAGE	BHANBREW	TZS 1256	FEBRUARY	2019	SME
2273	HONLE ELECTRIC EAST AFRICA LTD	DAR-ES-SALAAM	LOCAL	POWER TRANSFORMER (50 KVA)		TZS284/IEC 60076-1	FEBRUARY	2019	NORMAL
2275	TANZANIA PRINTING SERVICES LTD	DAR ES SALAAM	LOCAL	FILES(BOX, SPRING AND FOLDER)	NGALABA	TZS 66	FEBRUARY	2019	NORMAL
2276	TANZANIA PRINTING SERVICES LTD	DAR ES SALAAM	LOCAL	ENVELOPE A4	NGALABA	TZS 67	FEBRUARY	2019	NORMAL
2277	MILKCOM DAIRIES LTD	DAR ES SALAAM	LOCAL	ICE CREAM	VANILLA, STRAWBERRY, CHOCOLATE FLAVOUR	TZS 306/ EAS 70	MARCH	2019	NORMAL
2278	G & CO CLEANING & SANITATION LTD	DAR ES SALAAM	LOCAL	MULTIPURPOSE LIQUID SOAP	PERFECT TOUCH	TZS 624/ EAS 383	MARCH	2019	SME
2279	G & CO CLEANING & SANITATION LTD	DAR ES SALAAM	LOCAL	DISINFECTANTS	PERFECT TOUCH	TZS 801	MARCH	2019	SME
2217	CHAI LEO LTD	DAR ES SALAAM	LOCAL	BLENDED BLACK TEA	KARIBU & FURAHA	TZS 728	MARCH	2019	NORMAL
2280	NYATI SPIRITZ LTD	DAR ES SALAAM	LOCAL	POTABLE SPIRIT	DON NYATI-NYATI FUSION	TZS 468/ EAS109	MARCH	2019	NORMAL
2281	PRECIOUS DRINKING WATER LTD	PWANI	LOCAL	BOTTLED DRINKING WATER	PRECIOUS	TZS 574/ EAS 153	MARCH	2019	NORMAL
2282	ASILILAND COMPANY	DAR ES SALAAM	LOCAL	MBILIMBI PICKLE	CHRISTAB	TZS 433	MARCH	2019	SME
2242	UR HOME COMPANY	DAR ES SALAAM	LOCAL	SYNTHETIC DETERGENT POWDER	NICEONE	TZS 398	MARCH	2019	NORMAL
2283	BRENDER FOOD SUPLIERS	DAR ES SALAAM	LOCAL	PEANUT BUTTER	BRENDER	TZS 844/ EAS 60	APRIL	2019	SME
2284	REST FOOD PRODUCTS	ARUSHA	LOCAL	PEANUT BUTTER	REST FOOD PRODUCTS	TZS 844/ EAS 60	MARCH	2019	SME

2285	BENEDICTINE FATHERS SAKARANI	TANGA	LOCAL	STILL TABLE WINE	SAKARANI PORT	TZS 467/ EAS 138	MARCH	2019	SME
2286	MOGAS TANZANIA LTD	TANGA	LOCAL	ENGINE OIL	DURAMAX EXTRA SAE 25W-50, SENTRY HD SAE 40, DURAMAX HD SAE 40, SENTRY 4T 20W-50 & TURBOFLEET 15W-40	TZS 647:2014.	MARCH	2019	NORMAL
2287	GALAXY FOOD AND BEVERAGES LTD	ARUSHA	LOCAL	UHT MILK	KILIMANJARO FRESH	TZS 398/ EAS 27	MARCH	2019	SME
2288	MKONGOMA GENERAL SUPPLY COMPANY LIMITED	DAR ES SALAAM	LOCAL	WRITING CHALKS.	CONTINENTAL	TZS 68	MARCH	2019	NORMAL
2288	MAMUJEE PRODUCTS LTD	TANGA	LOCAL	TALCUM POWDER	SNOW WHITE, STELLA, ELLA BEAUTY, PODOA & MADAM	TZS 840	MARCH	2019	NORMAL
2289	MAMUJEE PRODUCTS LTD	TANGA	LO	TALCUM POWDER					NORMAL
2291	EVERWELL CABLE AND ENGINEERING CO.LTD	DAR ES SALAAM	LOCAL	POWER DISTRIBUTION TRANSFORMER		TZS 284	MARCH	2019	NORMAL
2292	CAREN FOOD PRODUCTS	DAR ES SALAAM	LOCAL	PEANUT BUTTER	CAREN	TZS 844/ EAS 60	MARCH	2019	NORMAL
2293	MARENGA MWERS LTD	DAR ES SALAAM	LOCAL	FORTIFIED MAIZE FLOUR	JOGOO	TZS 328/768		2019	NORMAL
2294	SIRARI FOOD SUPPLY	MARA	LOCAL	MILLED RICE-GRADE 1	MCHELE SAFI	TZS 592/ EAS 128	APRIL	2019	NORMAL
2295	TANGANYIKA WATTLE COMPANY LIMITED	DAR ES SALAAM	LOCAL	TREATED SAWN TIMBER		TZS 1347	APRIL	2019	NORMAL
2296	CPL (TANZANIA) GRAIN PROCESSING AND STORAGE CO.LTD	PWANI	LOCAL	MAIZE FLOUR	YES SEMBE	TZS 328/ EAS 768	APRIL	2019	NORMAL
2297	ECK BEEKEEPINK &FOREST PRODUCTS	DAR ES SALAAM	LOCAL	PEANUT BUTTER	PEANUT BUTTER (KASEDA	TZS 844	APRIL	2019	SME
2298	ECK BEEKEEPINK &FOREST PRODUCTS	DAR ES SALAAM	LOCAL	HONEY	HONEY (KASEDA)	TZS 851	APRIL	2019	SME
2299	SUMMIT SPRINGS	KILIMANJARO	LOCAL	BOTTLED DRINKING WATER	SUMMIT SPRINGS	TZS 574	APRIL	2019	NORMAL
2301	TANUK - AFRICA LTD	DAR ES SALAAM	LOCAL	SQUARE HOLLOW SECTION TUBES		TZS 1685/ EAS 134	APRIL	2019	NORMAL
2302	PLATNUM PAINT INVESTMENT CO. LTD	DAR ES SALAAM	LOCAL	SILK PAINT	PLATNUM	TZS 723	APRIL	2019	NORMAL
2303	ROISA INVESTMENT CO. LTD	ARUSHA	LOCAL	BANANA ALCOHOLIC BEVERAGE	NYATI	TZS 1256	APRIL	2019	NORMAL
2304	CHUI DISTILLERIES	DAR ES SALAAM	LOCAL	GIN	CHUI PINEAPPLE & CHUI DRY GIN	TZS 1008/ EAS 145	APRIL	2019	SME
2305	SAMAKI PLASTICS BAGS LIMITED	DAR ES SALAAM	LOCAL	WOVEN POLYSACK		TZS 1257	APRIL	2019	NORMAL

2307	TRINITY PRODUCTS LTD	DAR ES SALAAM	LOCAL	PORTABLE SPIRIT	JOY	TZS 468/ EAS 109	APRIL	2019	NORMAL
2308	AZANIA POLYBAG INDUSTRIES LTD	DAR ES SALAAM	LOCAL	PP WOVEN SACKS	5Kg,10Kg, 25Kg, 50Kg &100Kg	TZS 1257	APRIL	2019	NORMAL
2309	PLATNUM PAINT INVESTMENT CO. LTD	DAR ES SALAAM	LOCAL	MATT EMULSION PAINTS FOR INTERIOR AND EXTERIOR USE	PLATINUM PAINTS	TZS 722/ EAS 851	APRIL	2019	SME
2310	KILIMANJARO CABLES LTD	DAR ES SALAAM	LOCAL	PVC ELECTRICAL CONDUITS	AFRICAB	TZS 233	APRIL	2019	NORMAL
2311	PNP INDUSTRIES LTD	DAR ES SALAAM	LOCAL	GASEOUS OXYGEN	GASEOUS OXYGEN	TZS 217	APRIL	2019	NORMAL
2312	A TO Z TEXTILES MILLS LIMITED	ARUSHA	LOCAL	FLEXIBLE CARRIER BAGS		TZS 1531	MAY	2019	NORMAL
2313	SOUTHER FARMS & BEVERAGES	RUVUMA	LOCAL	BANANA ALCOHOLIC BEVERAGE	NGONI	TZS 1256	MAY	2019	SME
2314	REAL FOOD LTD		LOCAL	BISCUIT	REAL	TZS 136	MAY	2019	NORMAL
2315	ICE DROP COMPANY LIMITED	DAR ES SALAAM	LOCAL	BOTTLED DRINKING WATER	ICE DROP	TZS 574/ EAS 153	MAY	2019	NORMAL
2316	TANEEM DRINKING WATER	DAR ES SALAAM	LOCAL	BOTTLED DRINKING WATER	MAJI ASILI	TZS 574/ EAS 153	MAY	2019	SME
2317	STARPECO LIMITED	DAR ES SALAAM	LOCAL	MEDIUM CURING CUTBACK BITUMEN		TZS 1940:2017	MAY	2019	NORMAL
2318	DODOMA INNOVATION AND PRODUCTION CO. LTD	DODOMA	LOCAL	CARBONATED SOFT DRINK	ASANTE A-COLA	TZS 390:2004	MAY	2019	NORMAL
2319	GRACE PRODUCTS LIMITED	DAR ES SALAAM	LOCAL	SKIN CARE	GRACE-ZOAZOA	TZS 313	MAY	2019	
2320	SIVAT AGRIBUSINESS LIMITED	ARUSHA	LOCAL	CULTURED SOUR MILK, YOGHURT		TZS 1625:2013	JUNE	2019	SME
	SIVAT AGRIBUSINESS LIMITED	ARUSHA	LOCAL		VANILLA	TZS307/ EAS33	JUNE	2019	SME
2321	DODOMA INNOVATION AND PRODUCTION CO. LTD	DODOMA	LOCAL	SPARKLING DRINKING WATER	ASANTE	TZS 2064:2017	JUNE	2019	NORMAL
2322	ANNO NATURAL FOODS	DAR ES SALAAM	LOCAL	PEANUT BUTTER	ANNO	TZS 8442014	JUNE	2019	SME
2324	NSHUPU ASILI	ARUSHA	LOCAL	MAIZE FLOUR-SEMBE	NSHUPU ASILI	TZS 328	JUNE	2019	SME
2325	WINNIE'S ENTERPRISES	DAR ES SALAAM	LOCAL	MIXED MASALA	GOFOR	TZS 1985:2017	JUNE	2019	SME
2326	CATHCCO FOODS TANZANIA LIMITED	DAR ES SALAAM	LOCAL	PEANUT BUTTER	TANFLEVA	TZS 844:2014/ EAS 60:2013	JUNE	2019	SME
2327	RAINBOW CHALK PRODUCTION	DAR ES SALAAM	LOCAL	EMULSION COVER		TZS 722	JUNE	2019	
2328	KOPRU INTERNATIONAL COMPANY LTD	DAR ES SALAAM	LOCAL	HIGH COVER EMULSION PAINT	KOPRU	TZS 722	JUNE	2019	NORMAL
2329	PANAFRICA ENTERPRISES LTD	DAR ES SALAAM	LOCAL	PETROLEUM JELLY	COMFY)	TZS 318	JUNE	2019	
2330	PETPACK INDUSTRIES LTD	DAR ES SALAAM	LOCAL	BOTTLED DRINKING WATER	RUFIJI	TZS 574/ EAS 153	JUNE	2019	NORMAL
2331	MALUNN INVESTIMENTS	DAR ES SALAAM	LOCAL	Whole Maize flour	SEMBE& DONA	TZS 328	JULY	2019	SME

2332	MALUNN INVESTIMENTS	DAR ES SALAAM	LOCAL	EDIBLE SUNFLOWER OIL	MALUNN	TZS 50/EAS 299	JULY	2019	SME
2333	TRINITY PRODUCTS	DAR ES SALAAM	LOCAL	BRANDY	POLO	TZS 940/ EAS 143	JUNE	2019	NORMAL
2334	LN FUTURE BUILDING MATERIALS CO. LTD	DAR ES SALAAM	LOCAL	EXTRUDED ANODISED ALUMINIUM PROFILE	JAM SECTION, CILL SECTION, TOP SECTION, HOOK SECTION, PLAIN SECTION, MOSQUITO NETTING SECTION, Z - SECTION, T – SECTION OUTER SECTION, BEADING SECTION & ANGLE SECTION	TZS 1928	JUNE	2019	NORMAL
2335	INSIGNIA LIMITED	DAR ES SALAAM	LOCAL	PRIMER RED OXIDE		TZS 1880	JUNE	2019	
2336	INSIGNIA LIMITED	DAR ES SALAAM	LOCAL	SYNTHETIC VANISH FOR WOOD FINISHES		TZS 1879	JUNE	2019	
2337	INSIGNIA LIMITED	DAR ES SALAAM	LOCAL	PVA ROOF PAINT		TZS 1899	JUNE	2019	
2338	RADIANT INDUSTRIES LTD	PWANI	LOCAL	PETROLEUM JELLY	Tulip	TZS 318	JUNE	2019	NORMAL
2339	RADIANT INDUSTRIES LTD	PWANI	LOCAL	BODY CREAM	Tulip Body Milk Cream	TZS 313	JUNE	2019	NORMAL
2340	ALFINE TANZANIA LTD	ARUSHA	LOCAL	WOOD POLISH	MAMBA PAINTS			2019	
2341	CHAI TOSHA	DAR ES SALAAM	LOCAL	TEA MASALA	CHAI TOSHA	TZS 1430: 2017	JUNE	2019	NORMAL
2342	SPARKLE PRODUCTS LTD	DAR ES SALAAM	LOCAL	DISINFENCTANT	FUS	TZS 801: 20176	JUNE	2019	SME
2343	SPARKLE PRODUCTS LTD	DAR ES SALAAM	LOCAL	DETERGENT	FUS	TZS624: 2014/ EAS383: 2013	JUNE	2019	SME
2344	SPARKLE PRODUCTS LTD	DAR ES SALAAM	LOCAL	INSTANT HAND SANITIZER	FRESH LIFE	TZS 1659: 2014/EAS 789:2013		2019	SME
	SHANDONG JINYU TYRE CO LTD	CHINA	ABROAD	PNEUMATIC TYRE FOR TRUCKS AND BUSES	KINGLION	TZS 617	JANUARY	2019	NORMAL

Sample tested and calibrations made

Testing and Calibration and Packaging Services Directorate progress report for the periond of January – June 2019 is basing on services offered i.e., testing, calibration and packaging services. During the period under review the following are the samples tested in the various laboratories.

Laboratory	Number of Sample tested
Building and Construction	471
Electrical	1538
Mechanical	1897
Food	1782
Textile	2547
Packaging	525
Metrology (calibrated items/equipment)	4408
Total	**13,168**

THE ROLE OF MICROORGANISMS IN FOOD INDUSTRY

Frank Fovo

Microorganisms play an important role in food industry. They are used in production of various food products, and are also responsible for food spoilage and thereby causing intoxication and diseases. Microbial contamination of food products usually takes place on the way to the processing plant, or during processing, storage, transport and distribution or before consumption. The microorganisms that are responsible for food spoilage can also be exploited in production of food and food products mainly bacteria, mold and yeast.

Beneficial microorganisms includes all microbes that can be processed in such a way that can be utilized in a healthy product. Microorganisms like bacteria and fungi can provide beneficial role in food products like probiotics, dietary fibres, preparation of antibiotics such as penicillin and strepromycin.

1. Bacteria

This is the largest group of unicellular microorganisms. Pathogenic bacteria are usually classified as gram negative, however, there are three gram-positive rods known to cause food intoxications: *Clostridium botulinum*, *C. perfringens*, and *Bacillus cereus*.

Some of the most common bacteria that are responsible for food spoilage, infections and diseases are Acinetobacter, Aeromonas, Escherichia, Proteus, Alcaligenes, Flavobacterium, Pseudomonas, Archobacter, Salmonella, Lactococcus, Serratia, Campylobacter, Shigella, Citrobacter, Listeria, Staphylococcus, Micrococcus, Corynebacterium, Vibro, Enterobacter, Paenibacillus, Weissella, Enterococcus, Yersinia.

Different strains of bacteria are also used in production of various food and dairy products. Strain of bacteria like Streptococcus, Lactobacillus Bifidobacterium, Erwinia and others are used in the production of fermented food and dairy products. *Streptococcus thermophilus* and *Lactobacillus bulgaricus* are used to produce yoghurt.

2. Molds

These are multicellular filamentous fungi whose growth of foods is usually recognized by their fuzzy or cottony appearance. They are usually responsible for food spoilage at room temperature 25-30°C and low pH, and have minimum moisture requirement.

Molds can rapidly grow on grains and corns when these products are stored under moist conditions. Molds require free oxygen for growth and hence they grown on the surface of contaminated food.

Molds are also very useful in the food production of different foods and food products. They are used in the ripening of various food products such as cheese; *Bothrytiscinerea* is used in rotting of grapes for wine production. Molds are also grown as feed and food and are employed to produce ingredients such as enzymes like amylase used in bread making or citric acid used in soft drinks.

3. Yeast

Yeast are single celled microorganisms classified along with molds under kingdom fungi. These have the ability to ferment sugars to ethanol and carbon-dioxide and hence they are extensively useful in food industry. The most commonly used yeast, baker's yeast is grown industrially. *Saccharomyces carlsbergensis* is most commonly used in fermentation of most beers.

Supporting SMEs meeting the standard for trade

Zena Chijoriga

While standards are a gateway to trade, compliance can be time-consuming and costly. Costs for firms can involve hiring competent persons or specialized agencies. These are essentially fixed costs. They can be detrimental for small producers, since such fixed costs account for a higher share of unit costs in their case. Whether costs are prohibitive largely depends on the support SMEs find in the immediate business environment, in national legislation and from national institutions. Policymakers can shape a supportive regulatory environment that simultaneously protects the public interest. This role is complex because an effective regulatory environment needs to be supported by a national technical environment that consists of numerous, interdependent institutions. Shortcomings in a single institution can trigger systemic problems.

Governments have a role to ensure that national technical infrastructure works for firms. Collaboration with the private sector increases the chance that regulation and implementation are business-friendly. Governments must strike a balance between public and private roles. Note that support measures can promote one sector over another, whether intentionally or not. These include investment decisions regarding technical infrastructure. Setting up a laboratory for tests, a crash testing institute for vehicles or a financial sector regulatory institution, involve different types of expertise. Resource constrained developing countries may not be in a position to build them all at the same time.

Any action by governments or private sectors which tips the cost benefit analysis towards compliance will encourage firms to meet standards and technical regulations. Regulatory conditions are among the most important factors affecting SMEs and entrepreneurship. SMEs usually face bigger challenges than large firms in screening the regulatory environment and dealing with norms. In recent years, important progress has been made to reduce the administrative burdens on start-ups, lower legal barriers to entry, and reduce the costs for regulatory compliance in different areas. However, the complexity of regulatory procedures, covering a wide range of areas such as license and permit systems, insolvency and tax, among others, remains a major obstacle to entrepreneurial activity. To enhance regulatory conditions for SMEs, there is no one-size-fit-all model. Key elements for SMEs include: simplification of regulations and administrative procedures, regulatory impact assessment, reforms to tax administration and bankruptcy procedures, including to promote a second chance for honest entrepreneurs, improved availability and provision of information, and use of digital technologies to reduce administrative burdens and facilitate collaborative relationships with businesses and citizens.

Tanzania government has increased efforts on regulatory reforms to improve and develop a business environment that offers a level playing field for SME and entrepreneurship development through the introduction of "BLUEPRINT" of which its implementation emphases on regulatory simplification achievement to the business and trade including preserving the incentives for these businesses to grow and boosting the investments in the country.

When firms consider adopting standards or compliance with technical regulations, they are likely to perform a cost-benefit analysis. Compliance costs are tangible, immediate and relatively easy to identify. They include shifting existing employees to other tasks or hiring new workers; paying external bodies to supply compliance training and advice; and purchasing and maintaining new equipment. Benefits are harder to identify and measure. Compliance can open access to new markets, generate price premiums and enhance reputation. Compliance also offers protection against fines and penalties related to regulations. These factors might ultimately translate into higher revenues. Companies wishing to export must first determine whether their product can be sold in international markets. To do this, companies need to identify the standards and technical regulations that apply to their products and whether they meet them. This information is costly for firms particularly SMEs, especially in unpredictable regulatory environments. They often report that processes are not transparent or information is unavailable, outdated and unreliable though they fail to search and/or interpreting.

The increased instances of business failure among the SMEs prompt a continual debut on the critical problem affecting the survival of the SMEs. Deciding to implement a standard or regulation is also time-consuming. It may involve gathering additional information to assess costs and benefits. Implementation is often costly, as it may engender new investments or more expensive production methods. Moreover, compliance has to be certified, which usually involves a third organization that needs to be paid. The nature and size of costs mainly depend on the business line in question. Whereas one standard or regulation may only require a firm to adjust its marketing and sales, another may require a complete overhaul of the firm's operations. Costs are often fixed, they do not occur with every unit of production, but rather at specific moments in the process, such as the stage of investing in implementation or certifying a production process. Standards and regulations have the potential to increase fixed and marginal trade and/or production costs. To comply, SMEs often must invest in new technology, production processes or logistical processes. Costs also occur at the certification stage, when firms have to prove that they have implemented a standard or a regulation.

There are a number of clear, tangible benefits for SMEs in implementing standards, which can far exceed the cost of accessing and using these documents. At the most basic level, standards allow SMEs to apply tried and tested best practice to their business. They encourage a business to focus on the products or services being delivered, the processes being followed and the way the business is managed overall. They provide a practical framework for the review and continuous improvement of different areas, and can make a business more efficient, improve the quality of its products and services, assist in obtaining new customers and ultimately boost the all-important bottom line.

Some of the common benefits realised from using standards are; first, improvements to the quality of the product or service provided. Standards can help SMEs to improve and monitor the quality of their product or service, which can increase customer satisfaction and repeat business, as well as attract new customers. Second, increased ability to demonstrate the quality of products or services by proving their adherence to standards, SMEs can clearly demonstrate the quality of their products and services, which will help to attract new customers and retain existing ones. Proof of adherence can be further strengthened by independent (i.e. third-party) confirmation from a recognised certification body like Tanzania Bureau of Standards (TBS).

Third, increased confidence in the business, and its products or services. Standards provide reassurance to businesses and their customers that their products or services live up to the state of the art, they add credibility to a business and increase the confidence of its customers by demonstrating a commitment to quality, safety and reliability. Standards provide reassurance and inspire trust, and consumers view businesses that apply standards more favourably than those that don't.

Fourth, improvements to company's image. Standards can help SMEs to market their products and services internationally, standards and associated certification marks are a widely recognised and respected sign of commitment to quality, and can prove a beneficial addition to the image of a company, its marketing activities and the content of any tenders or pitches.

Fifth, the ability to cooperate and trade using a common 'language'. Most standards provide common definitions and terminology for use within an industry. This codification of knowledge can help businesses to cooperate, create strategic alliances and trade in an efficient way, standardised terms and definitions provide clarity and comprehensibility, and can simplify communication across fields of expertise and across international borders.

Sixth, interoperability between different products and systems. Standards provide a collection of harmonised rules and standard methods that allow products and services to have a high level of functionality, interoperability and compatibility, boosting their market acceptance.

Seventh, improved ability to trade across borders and export. The use of national and international standards aids access and entry to much wider national and international markets for an SME, and assists with the marketing and acceptance of its products and services in these markets. Using standards as part of an export strategy can create new business opportunities and increased sales, with reduced trading costs.

Eighth, improved ability to meet legislative and regulatory requirements. Those who apply standards rely on sound and well-accepted expertise, are aware of the requirements to be met by their products and services, and can prove their reliability and safety by means of standardised testing methods. National/regional harmonised standards provide a direct presumption of conformity to national legislation, this enables the SME to put their product or service on the International market without having to go through further conformity assessment requirements. Because standards reflect the current state of technology, they can help businesses reduce their liability risk in other areas. In questions of liability, legislators often fall back on a general clause that specifies that technical products are to be designed to recognised technical rules, such as standards.

Ninth, improved access to and success in public procurement. Standards codify the state of the art of innovative products and services and are often used as references in public procurement. Adherence to standards can make it easier to meet the requirements of public procurement rules as well as have a positive impact on how a business is assessed.

Tenth, improved access to state of the art knowledge. Standardisation allows SMEs to access the latest information and knowledge for their sector, on market trends, the evolution of the state of the art the best business practices and the latest technologies. This provides access to new knowledge, reduces the resources wasted on duplicative, improves the ability of SMEs to innovate, strengthens their innovation capacity, assists in the development of new products and services, and enables them to compete in the global market on a level playing field. It also enables SMEs to exploit their best competitive advantage over larger enterprises: their size, which gives them the dynamism and flexibility to innovate quickly.

Eleventh, improved internal risk management and planning. Businesses which adopt standards are more prepared to deal with potential issues and problems, such as IT failure or failure in the supply chain. This is because standards have helped them to improve their business processes, implement best practice, and monitor their progress and results in a structured way.

Twelfth, reduced costs. Standards lead to cost reduction through enabling mass production and global purchasing, rationalisation of processes, lower transaction and information costs, reduced adjustment costs and shorter development times, as well as more efficient activities and better management. These cost reductions can be an important driver of profitability.

Last but not least, increased competitiveness. Standards help to open-up markets by allowing customers to compare offers from different suppliers, thereby making it easier for smaller and younger enterprises to compete with larger and more long established companies. They can give SMEs a competitive advantage, help them to compete on a level playing field with bigger enterprises internationally and to enter new or established markets.

In order for SMEs (and therefore the wider economy) to realise the benefits of standards and standardisation, they need to be supported and encouraged to overcome the problems and barriers identified, and to both make use of standards that currently exist and be active participants in the development of the standards of the future. Specifically, through the use of structural funds, managing authorities should consider in SME; innovation and entrepreneurship related support measures that contribute to the following goals; SMEs should understand what standards are and what they can do, SMEs should be aware of what standards are, as well as which standards are currently available and applicable to their business. They should also be aware of the potential benefits to be gained from understanding and implementing standards. Where this is not the case, there is a need to raise awareness and understanding amongst SMEs of the existence of standards (both generally, and in terms of specific standards) and the benefits of their implementation and use. SMEs should be able to find, access and make effective use of any current standards that are applicable to their business. Where this is not currently happening, there is a need to support and encourage SMEs to identify, obtain and implement these relevant standards. In addition, it may be necessary to help SMEs with understanding and implementing standards, particularly where those standards have been developed without significant involvement from SMEs.

SMEs should be active participants in the standardisation process SMEs should understand what the standardisation system is, how to be involved (initiating new standards and participating in the revision of existing ones) and what the short and long term benefits of participation in this process are. They should be able to provide effective inputs and actively participate in the development of standards. Where this is not the case, there is a need to raise awareness of the standardisation process and the opportunities available for SMEs, and to support and encourage SMEs to make constructive and significant inputs into the process.

Tanzania Bureau of Standards (TBS) as a standardisation body in the country is already supporting various initiatives to improve standardisation at national level, however to make it more appropriate and beneficial for SMEs, variety of different initiatives have also been continuous instigated at the national or regional level in different parts that could usefully be implemented more widely and need to be tackled in each of these areas, and then introduce the types of solution that could be employed to address these and implementations at the national or regional level . The funding could be either directly disbursed to SMEs, e.g. as part of the financing of a research and innovation project grant, or innovation voucher schemes could allow SMEs to access standardisation support services from relevant intermediaries.

In most cases, intermediary organisations such as trade associations, chambers of commerce, innovation centres, or similar would seem to be the most appropriate direct recipients of Structural Fund money in order to provide standardisation related advice and guidance to SMEs, including possibly by providing an on-going communication channel between the world of standards at the national or international level, and the individual SMEs within a region. These organisations have the benefit of both local / sectoral knowledge and links into national and international systems. They can serve as active centralised conduits of information on standards, as well as sources of further advice and guidance to individual companies. Managing authorities that wish to develop measures that can help SMEs make better use of standards are encouraged to discuss their ideas initially with their National Standardisation Bodies. Standards have led to significant benefits for individual Tanzanian businesses and industries, and offer a vital competitive edge to SMEs. They make life easier and safer, they create a level playing field on which to compete, they allow access to state-of-the-art technology, strengthen innovation capacity, and help achieve the most effective allocation of resources in the toughest of times. For SMEs, they are particularly vital as they remove many of the obstacles that would otherwise hinder their entry into and expansion within a market. SMEs can therefore benefit greatly from understanding, accessing and using standards, as well as actively participating in and influencing their development.

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Tanzania: The prospective industrialized country

Salim Mohamed

Tanzania's industrial sector has gone through various schemes or patterns since independence, from nascent and undiversified to state-led import substitution industrialization, and subsequently to deindustrialization under structural adjustment programmes and policy reforms. The current development agenda, however, has brought industrial development back to be the policy priorities.

Tanzania has declared Development Vision 2025. Briefly, the Vision 2025 intends at taking Tanzania through an unprecedented economic transformation and development to achieve middle-income status, characterised by high levels of industrialization by 2025.

Economic trends of highly developed countries or countries with tough economies, from European countries, United states of America, Japan to developed middle East countries, a robust industrial sector is broadly understood as a catalyst to their economic development. The most recent evidence of fast-growing economy boosted by industrialization and manufacturing is the economy of China.

Tanzania contains a wealth of favourable factors for industrialization particularly availability of low-cost labour and abundance of natural resources and raw materials. However, Tanzania, much like most of African countries, infrastructure bottlenecks and power/energy shortages continue to be the major challenges facing manufacturing and industrialization as a whole.

The following are some of the Tanzania's competitive advantages towards industrialization:

Abundance of raw materials; Tanzania has abundant natural resources with productive use implications for agriculture, mining and energy. The country has 44 million hectares of arable fertile land with only about 33 percent currently under cultivation. Resources include diamonds, gemstones, precious metals, solid mineral fuels, helium, graphite, nickel, forest products, domesticated livestock, wildlife, fish and marine resources, natural gas, and oil. Availability of these resources makes Tanzania one of the best industrialization bays in Africa.

Human capital; based on the statistics of United Nations and World bank, Tanzania has a population of more than 55 Million people whose median age is 17.4 years. More than 50% of the population is between 15 years old and 64 years old which is the age of people who can actively participate to the national economic activities. More than 40% of the population constitute of people who are below 14 years old. The population at the retirement age is below 5%. Considering the statistics, it is clear that Tanzania has a wealthy of human resources needed for economic activities such as industrialization.

Major investments in infrastructures; Improving the transportation infrastructures that include the nation's roads, ports, railways and airports is a key priority for the Government of Tanzania. Some of the investments in infrastructures include;

- Increasing rail freight to 4 million tons,
- Expanding sea and lake port cargo handling by 50 percent,
- Expanding Julius Nyerere International Airport's passenger and cargo handling capacity,
- Improving urban transportation networks to improve mobility and reduce congestion,
- The development of more effective intermodal transport links.

Figure 1: Construction of Standard Gauge Railway

Market; Tanzania is currently is in an era of building infrastructures to carter the rapid growth of its cities, this makes mild steel products, cement and other construction industry inputs to be considered as hot cake. The growth of the cities is stimulated by the growth of Tanzania's population at the rate of 3.1% (average annual growth rate) while urban population is growing at 33.8% (average annual growth rate). Notwithstanding the fact that the population is fast growing, the existing industries have not been able to fulfil the current consumption ability of Tanzanians.

Tanzania borders nine countries, Uganda to the north, Kenya to the northeast, Comoro Islands at the Indian Ocean to the east, Mozambique and Malawi to the south, Zambia to the southwest; and Rwanda, Burundi, and the Democratic Republic of the Congo to the west. Most of the goods imported into these countries from outside of Africa pass through the port of Dar es salaam. This led to the establishment of a very good supply network of goods between Tanzania and the neighbouring counties. This means Tanzania industrial produce can benefit from the existing supply network.

Stiegler's gorge hydroelectric power project; The African Development Bank estimates that electricity costs three times more in Africa than in comparable developing regions, and most industries operating in West and East Africa have to rely on expensive backup generators as a primary energy source, which adversely affects their profit margins.

Tanzania's government signed a contract on construction of Stiegler's Gorge Hydroelectric Power Station with Egypt's Arab Contractors and Elsewedy Electric in December last year which would generate more than 2,100MW of electricity. Tanzania will become a leading electricity producer in the East African region after completion of the project. Most importantly, the cost of the energy to be produced is estimated to be as low as US2 c/kWh, making Tanzania's electricity the cheapest in East African region.

Tanzania's government is currently working to improve business and investment environment within the country, a good example of the initiatives is the implementation of 'Blueprint on regulatory reforms to improve the business environment'. The above rationality signals a revolution in industrialization is about to materialize in Tanzania.

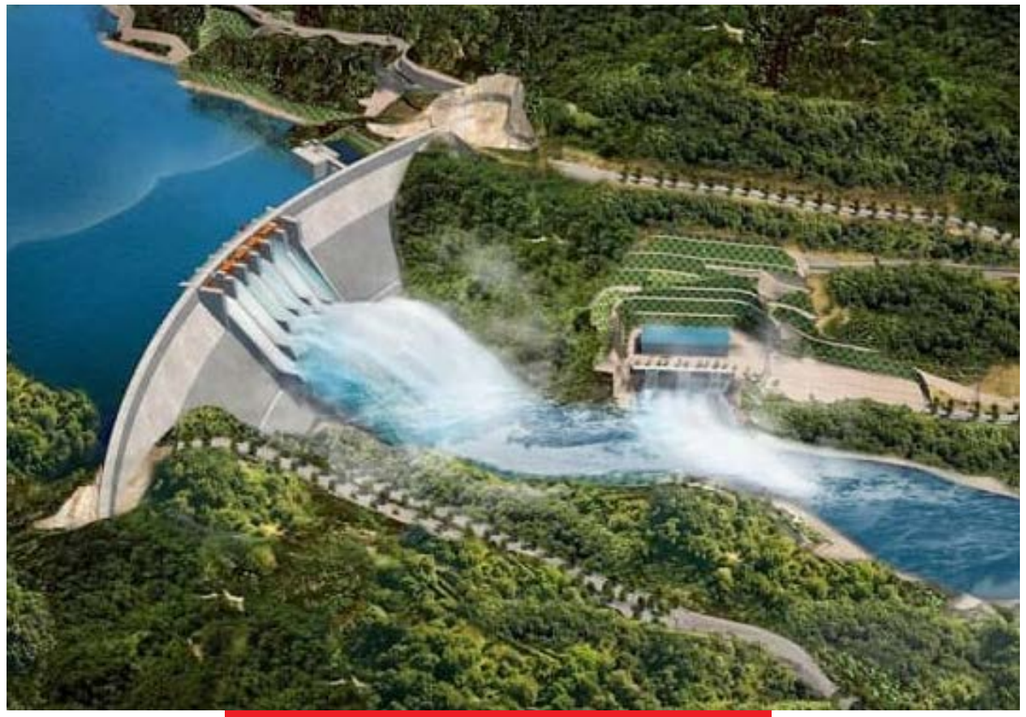

Figure 2: Stiegler's gorge hydroelectric power project

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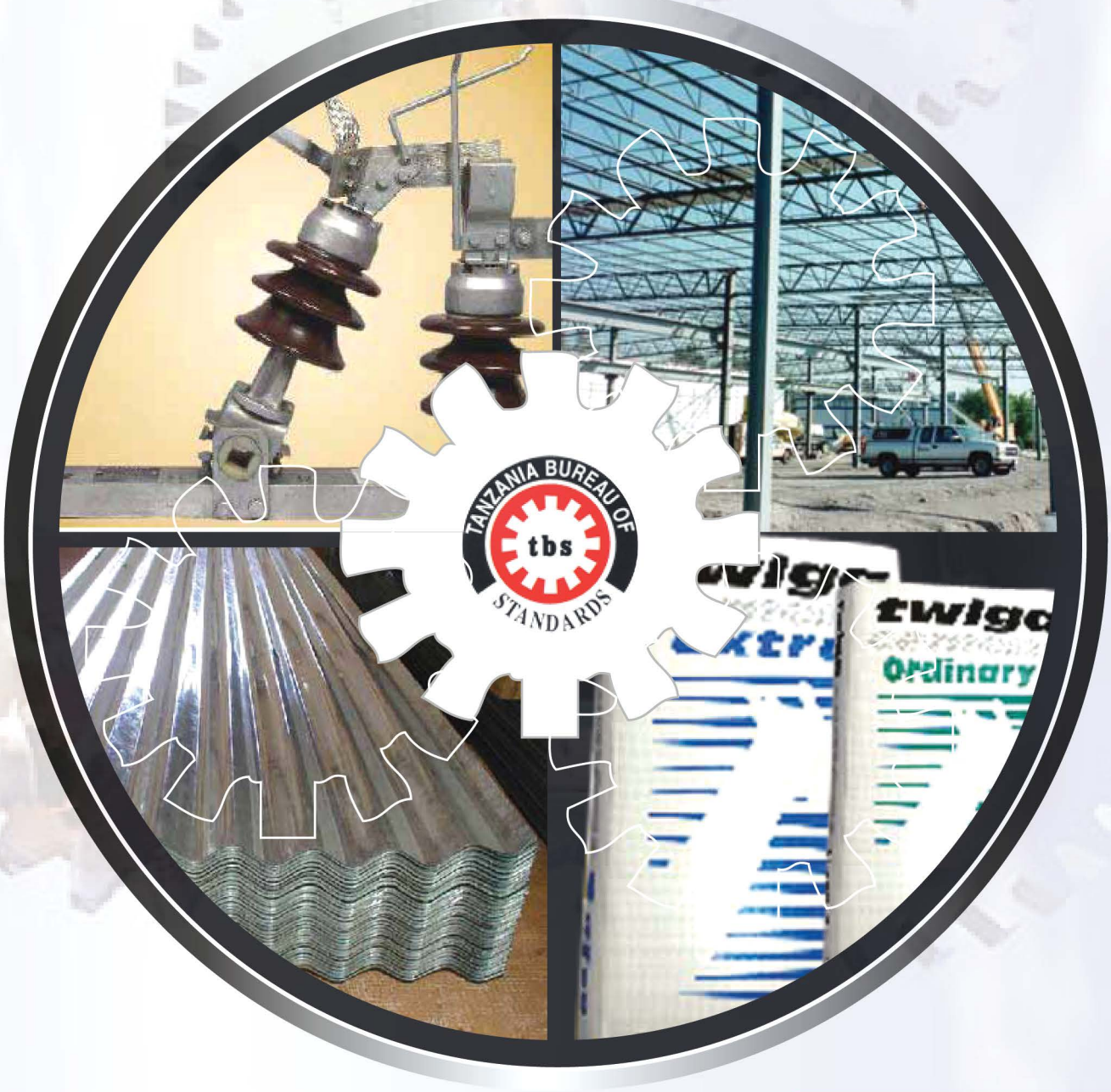

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