मानकः पथप्रदर्शकः

स्टैंडर्ड्स इंडिया
Standards India

Biofuels

MARKS OF TRUST

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Standard Mark

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Hallmark

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS

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मानकः पथप्रदर्शकः

BUREAU OF INDIAN STANDARDS

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Energy is a critical input for socio-economic development and the energy strategy of a country aims at efficiency, security, providing environment-friendly option and achievement of optimum mix of primary energy resources. Fossil fuels may continue to play a dominant role in the energy scenario of India in the next few decades. However, conventional or fossil fuel resources are limited, non-renewable, polluting and, therefore, need to be used prudently. The Government has emphasized on achieving energy security of the country with a target of reducing import dependence.

This issue talks about how the production of bio-based renewable ATF can be integrated into the present refinery configuration and would require less investment, indicating a great business, as well as, environmental opportunity for biofuels in the aviation sector. The new standards has now made it possible to use alternative and renewable fuels in the aircrafts in India. The commitment of the Government towards biofuel program is unprecedented. The successful implementation of the program will not only help steadily move towards energy self reliance but will help boost the rural economy, employment generation and creating clean and green environment. Your valuable feedback is welcome on standardsindia@bis.gov.in.

Binod Kumar Sinha,
Editor

ऊर्जा सामाजिक-आर्थिक विकास के लिए एक महत्वपूर्ण निवेश है और देश की ऊर्जा रणनीति का उद्देश्य दक्षता, सुरक्षा, पर्यावरण के अनुकूल विकल्प प्रदान करना और प्राथमिक ऊर्जा संसाधनों के इष्टतम मिश्रण की उपलब्धि है। अगले कुछ दशकों तक जीवाश्म ईंधन भारत के ऊर्जा परिदृश्य में प्रमुख भूमिका निभा सकते हैं। हालांकि, पारंपरिक या जीवाश्म ईंधन संसाधन सीमित, गैर-नवीकरणीय, प्रदूषणकारी हैं और इसलिए, विवेकपूर्ण रूप से उपयोग किए जाने की आवश्यकता है। सरकार ने आयात निर्भरता को कम करने के लक्ष्य के साथ देश की ऊर्जा सुरक्षा हासिल करने पर ज़ोर दिया है।

जैव-आधारित अक्षय एटीएफ के उत्पादन को वर्तमान रिफाइनरी कान्फिगरेशन में एकीकृत किया जा सकता है और कम निवेश की आवश्यकता होगी, जो एक महान व्यवसाय का संकेत देता है, साथ ही साथ विमानन क्षेत्र में जैव ईंधन के लिए पर्यावरणीय अवसर भी। नए मानकों ने अब भारत में हवाई जहाजों में वैकल्पिक और नवीकरणीय ईंधन का उपयोग करना संभव बना दिया है। जैव ईंधन कार्यक्रम के प्रति सरकार की प्रतिबद्धता अभूतपूर्व है। कार्यक्रम के सफल कार्यान्वयन से न केवल ऊर्जा आत्मनिर्भरता की दिशा में आगे बढ़ने में मदद मिलेगी बल्कि ग्रामीण अर्थव्यवस्था, रोजगार सृजन और स्वच्छ और हरित वातावरण बनाने में मदद मिलेगी। आपकी प्रतिक्रिया standardsindia@bis.gov.in पर स्वागत है।

बिनोद कुमार सिन्हा
संपादक

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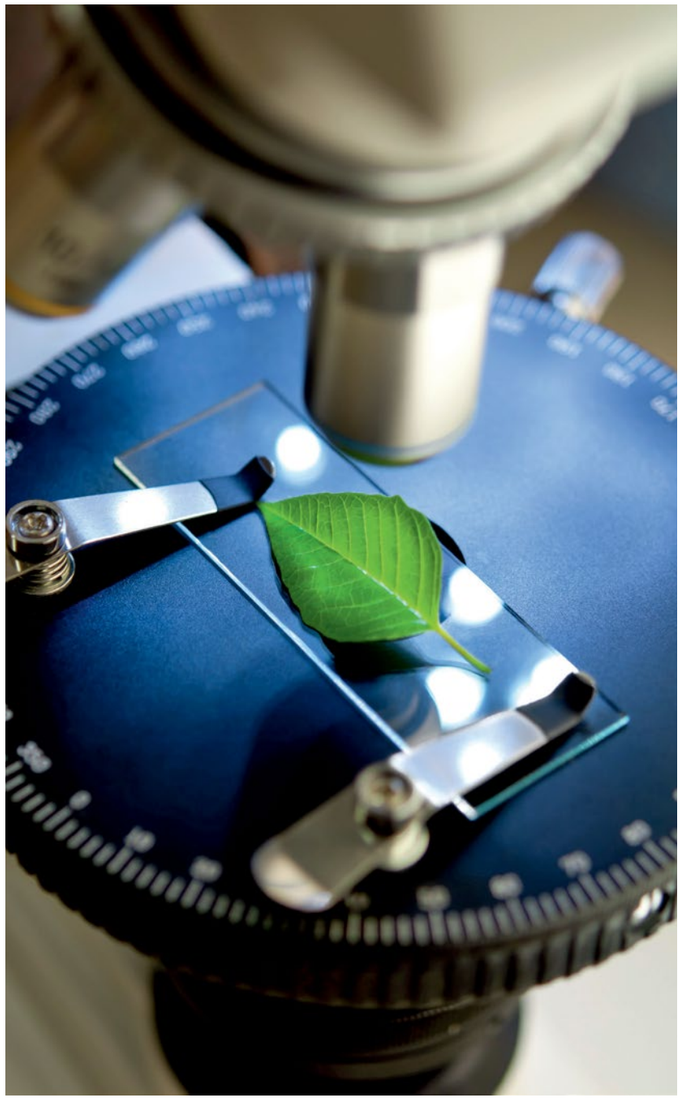
अगस्त–सितम्बर 2019



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MEASURING IT RIGHT

CELEBRATING BETTER MEASURING ON WORLD METROLOGY DAY

Standardized measurement literally makes the world go around. It is necessary for many diverse fields, including science and engineering, and is essential for new inventions and supporting innovation in both industry and society.

The SI brochure, published by the Bureau International des Poids et Mesures (BIPM), describes the International System of Units and is an important tool for the scientific community as it contains the definitions of measurement units. The theme of this year's World Metrology Day, celebrated annually on 20 May, is "The International System of Units – Fundamentally better", which this year recognizes the work behind the newly revised SI that comes into force on this day. Research into new measurement methods, such as those using quantum phenomena, underpin the revision in order to better meet the needs of future users for the benefit of the whole world.

When is a kilogramme not a kilogramme? When it is not defined in the International System of Units (SI). To mark the launch of its recently revised version, the SI has been chosen as the theme of this year's World Metrology Day

The ISO and IEC 80000 series of standards on quantities and units, referenced in the SI brochure, is getting revised to align with the new version, and many of the revised ISO parts are due to be published in the next few months.

This series of standards is important to the SI brochure as it provides harmonized terms, definitions and symbols of quantities and units used in science and engineering, providing a unified language for communicating accurate measurement information between scientists, engineers and everyone involved in measurement.

The standards are used by metrology and technical institutes, academia, technical book writers and translators and standards developers, as well as across many industries and society at large.

The ISO 80000 series was developed by technical committee ISO/TC 12, Quantities and units, the secretariat of which is held by SIS, ISO's member for Sweden.

AIR QUALITY STANDARDS

BREATHE EASY WITH ISO STANDARDS ON WORLD ENVIRONMENT DAY

ISO has many international standards that contribute to cleaner air and reducing pollution. ISO's technical committee ISO/TC 146, Air quality, has over 170 published standards and 37 in development that cover a range of areas such as the measurement of air pollutants and emissions, workspace air and indoor air. Secretary of the committee, Dr. Rolf Kordecki said consistent measurement of toxic substances in the air is essential in order to be able to limit them. Another example is the range of standards from ISO technical committee ISO/TC 285, Clean cookstoves and clean cooking solutions, which aim to help drive the market for safe and efficient cooking solutions and to reduce the number of deaths and illnesses caused by polluting stoves.

There is nothing more precious to life than the air we breathe. This year's World Environment Day theme is air pollution and ISO has a range of international standards that help to combat it

ISO also has many standards either published or in development aimed at supporting new technologies that clean up our air, such as those for electric, hybrid and fuel-cell road vehicles. These include ISO 20762, Electrically propelled road vehicles – Determination of power for propulsion of hybrid electric vehicle and ISO 23274, Hybrid-electric road vehicles – Exhaust emissions and fuel consumption measurements.

IT'S ALL IN THE NAME

THE WORLD'S FIRST INTERNATIONAL STANDARD FOR BRAND EVALUATION GETS PUBLISHED

No-one wants to pay 'just for the name' yet branding power means we often do. One of those intangible but valuable things, branding influences the decisions of customers, financial institutions, potential buyers of the business and more. And some brands are worth a lot.

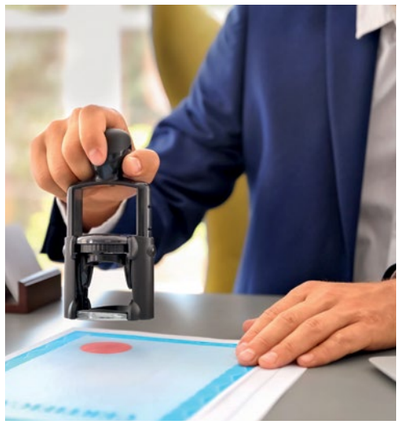
ISO 20671, Brand evaluation –Principles and fundamentals, aims to standardize the technical requirements and evaluation methods involved in brand valuation. It complements ISO 10668, Brand valuation – Requirements for monetary brand valuation, which focuses primarily on the financial aspects.

A brand can be a company's most valuable asset – yet how do you know what it's really worth? Measuring the value of a brand starts with knowing what to measure – and how. The world's first International Standard for brand evaluation will help, and has now been published

ISO 20671 was inspired by the Austrian standard, ONR 16800 Method for the evaluation of the intangible asset brand, published in 2006.

Dr. Gerhard Hrebicek, who was chair of the committee that developed ONR 16800 and played a role in the development of ISO 20671 said the standard starts a new era for brands. "ISO 20671 is aimed at businesses of all kinds wishing to increase their brand value and provides a starting point for high-level planning and governance, including best practices for brand management and brand reporting. It provides a more holistic view, covering non-financial as well as financial measures, and forms the basis for other, more specific standards to be developed."

ISO 20671 was developed by ISO/TC 289, Brand evaluation, the secretariat of which is held by SAC, ISO's member for China.



A STANDARD LANGUAGE

IMPROVING THE INTEGRITY OF THE SUPPLY CHAIN ON WORLD ACCREDITATION DAY

Getting goods across borders usually involves demonstrating conformity to local or international standards or regulations, which is why conformity assessment activities such as testing and certification are inextricably linked. They prove that the goods are what they claim to be. Accreditation adds further value by offering an independent assessment of the organizations that do the testing, to demonstrate they are impartial, competent and consistent.

Failures or errors in this regard can result in goods being refused or stuck at borders, incurring significant financial and reputational costs. Adding value to supply chains in this way is the theme of this year's World Accreditation Day, held on the 9th June every year to raise awareness of the importance of accreditation.

ISO not only has thousands of internationally agreed standards that outline test method requirements but also standards for the operation of bodies delivering conformity assessment activities and accreditation. ISO 28000, Specification for security management systems for the supply chain, for example, addresses potential security issues at every step of the supply process. Accreditation bodies often assess the competence of bodies involved in certifying businesses to this standard, ensuring integrity and security from every angle.

BIS—THE GLORIOUS PAST

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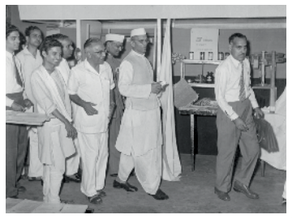

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1 Visit of Shri J.C. Ghosh, Director General, Industries & Supplies to Sham Nagar Factory, with members of the Planning commission

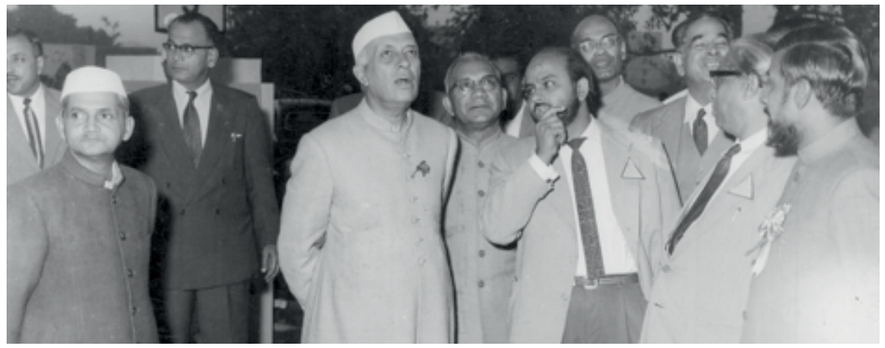
2 Shri J.Verghese, Chairman, Shri U.S.Jain, ISI Committee Secretary and Shri G.L.Gulati, Asst. Director, In-charge ISI Branch Madras at Inks and Allied Products Sectional Committee meeting in Madras, May 8, 1958.

3 Dr. Lal C Verman, Mr. I.D Collins, Shri C.S Chandrasekhara, Deputy Director, Building ISI at inauguration of the Indian Metal Window Association at Manak Bhavan.

4 Meeting of Indian Metal Window Association in progress

5 Shri Lal C Verman, Director, ISI with Shri Morarji Desai, Minister for commerce & Industry, GOI at ISI Stall at the Indian Textile Industries fair, Bombay 1957.

6 V.V. Apte & Chairman Weights & Measurement, Sectional Committee stressing the point at 6th meeting of the committee.



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7 Pt Jawahar Lal Nehru, PM of India with Shri Lal Bahadur Shashtri, President of ISI Admiring the MOSAIC FRIZE on the ISI Building named Manak Bhavan with the artists Shri Satish Gujral (on his left) explaining his creation. (Second from right) is Shri Fayazuddin, the Architect of ISI Building, Headquarters.

8 Goods Bearing ISI Certification Mark.

9 Dairy Industry Sectional Committee (AFDC-12) in session in the Cabinet room of the Old Secretariat, Bombay held from October 31, till November 2, 1957 with the Governor Dr. N.N Dastur.

10 Dr. Lal.C.Verman Director ISI, thanking the then Prime Minister Shri Jawaharlal Nehru on receiving the first K.L.Moudgill Prize, while Dr. Moudgill looks on. Facing the camera is professor M.S.Thacker.

FUELLING THE PROCESS

Indian Oil R&D initiatives on Biofuels aims at efficiency, security, providing an environment-friendly option and achievement of optimum mix of primary energy resources

BY . K. PURI AND S. S. V. RAMAKUMAR

India is one of the fastest growing economies and the third largest consumer of primary energy in the world after US and China. According to BP Energy Outlook, the energy consumption in India will increase by 129% by 2035 compared to 31% increase on global average. India's share will increase at 4.2% a year and reach 9% of global demand.

Energy is a critical input for socio-economic development and the energy strategy of a country aims at efficiency, security, providing environment-friendly option and achievement of optimum mix of primary energy resources. Fossil fuels may continue to play a dominant role in the energy scenario of India in the next few decades. However, conventional or fossil fuel resources are limited, non-renewable, polluting and, therefore, need to be used prudently. Fluctuations in crude oil prices severely strain Indian economy particularly current account deficit due to its major dependency on imported crude. India's energy security would remain vulnerable until alternative fuels are developed based on renewable feedstock.

Government has emphasized on achieving energy security of the country with a target of reducing import dependence i.e., usage of fossil fuels by 10% from current levels by the year 2022; and also the country is committed to reduce the carbon footprint by 30-35% by the year 2030 as per COP-21. This target will be achieved by adopting a five pronged strategy which includes, increasing Domestic Crude Production, Adopting Bio-fuels & Renewables, Energy Efficiency Norms, Improvement in Refinery Processes and Demand Substitution. This envisages a strategic role for Bio-fuels in the Indian Energy basket.

Renewable energy resources are indigenous, non-polluting and virtually inexhaustible. India is endowed with abundant renewable energy resources like agriculture/forest residues, organic waste, solar, wind, etc. Therefore, technologies to convert these renewable resources to energy especially bio-ethanol, biodiesel & drop-in fuels need to be encouraged in every possible way to improve the renewable energy share in the transport fuels. An indicative target of 20% blending of ethanol in petrol and 5% blending of biodiesel in diesel is proposed by 2030 in National Policy on Biofuels 2018 require huge capacity building of bio-ethanol and Biodiesel production in India. These targets would also help to achieve national target of 30-35% GHG reductions by 2030.

In view of this, the Government has issued National Policy on Bio-fuels 2018 to encouraging bio-fuel technologies based upon indigenous resources. The Policy encourages innovation and provides thrust to R &D and Demonstration in the field of Bio-fuels by utilizing developed/ emerging technologies while undertaking R&D activities. The Policy dwells on the development of the next generation Bio-fuel conversion technologies based on new feed stocks and promote domestically available feedstock exploring, utilizing the country's biodiversity. The policy aims to provide financial and fiscal incentives specific to Biofuel type, categorized as first generation (1G), second generation (2G) and third generation (3G) fuels. The first generation category of Bio-fuels includes bio-ethanol and biodiesel. The second generation comprises ethanol from lignocellulosic biomass, non-food crops, industrial waste & residue streams & Drop-in Fuels from biomass, MSW, plastics & industrial waste. The third generation includes compressed BioCNG from food waste, biomass, MSW & sewage water, etc. For 10 % ethanol blending, India will require about 4.5 billion litres of it in a year, about Rs 23,000 Cr in terms of value against the current 1G ethanol availability of about 1.5-2.5 billion litres. Therefore, demand supply gap is huge and new technologies are essentially required to improve the availability of bio-fuels in India. Indian Oil R&D Centre has been working on second and third generation bio-fuels technologies.

BIOETHANOL

IOC, R&D has given technical support to entire EBP program with taking up of following studies:

- **Pilot field trials project with 5% & 10 % Ethanol in MS have been carried out and report sent to MoP&NG.**
- **Emission studies with 5% & 10% ethanol in MS carried out in 2/4 wheeler vehicles.**
- **Assisted BIS to establish specification for automotive grade ethanol:IS15464:2004**
- **Studied the requirement of corrosion inhibitor & antioxidant additives for E5 & E10 and optimized the treat rate.**
- **Material compatibility studies for ethanol blended gasoline has also been carried out and recommendations given to SIAM to comply.**
- **Based upon Fields trials & lab studies MoP&NG notified the sale of E5 & E10 by OMC's.**
- **Indian Oil R&D, IIP Dehradun & ARAI Pune have carried out comprehensive evaluation including laboratory measurements and field trials to study the impact of E20 vis-à-vis commercial gasoline on old and new 2-wheelers and 4-wheelers.**
- **Recommended handling practices of ethanol/ E5 & E10 at terminals /retail outlets.**

ENZYME TECHNOLOGY FOR 2G ETHANOL

- Cellulase enzyme is a major Opex cost component in 2G ethanol process for conversion of biomass into ethanol. IOC R&D Centre Faridabad has embarked upon developing an indigenous cellulase enzyme recipe for the sustainable supply of enzyme at low opex.
- The cellulase enzyme preparation is a cocktail of multiple enzymes having different cellulolytic and hemicellulolytic activities like endo/exoglucanase, glucosidase, xylanase etc. that are required

for efficient hydrolytic performance. A large number of fungal strains were initially profiled for these activities and assessed for hydrolytic efficiency. Based upon the profiling two best strains having good hydrolytic activity were selected for further improvements as these were still having low productivity ranging 15-25 FPU/lt/hr (1.5-2.5 FPU/ml) on costly Avicel as carbon substrate.

- A three-tier integrated approach involving mutagenesis, fermentation optimization and nutrient recipe development was undertaken for efficient process development. More than 85,000 mutants of fungal strains were screened and evaluated. After optimization of carbon and nitrogen sources, cultural conditions, feeding strategies, etc., the cellulase enzyme production has been improved. Cheap carbon sources such as commercial cellulose, pretreated biomass were found to produce highly active enzyme with high productivity at lab scale.
- The enzyme production was further scaled up in 5 Lit bio-reactor using optimized media and carbon sources. Some fermentor parameters (pH, temp., DO, amount of feed) were again optimized at this scale to have maximum productivity and activity. This indigenously developed cellulase enzyme is cost effective and its performance was analyzed on different pretreated biomass (acid pretreated rice straw, wheat straw, sugar cane bagasse) for fermentable sugar production.
- Currently the process has further been demonstrated and established successfully in 5000Lt bio-reactor using commercial grade chemicals with excellent productivity (>100 FPU/L/Hr) and activity (>10 FPU/ml).
- The indigenously produced enzyme broth as such (without concentration and stabilization) has been evaluated in the 1MT/Day pilot plant and the indigenous enzyme has shown comparable hydrolysis efficiency to the commercial enzyme for rice straw biomass. Further enzyme trails are planned at 12 TPD demo 2G ethanol plant.
- The indigenously developed cellulase enzyme is cost effective by about 30%. This is first attempt in India to develop large scale enzyme production process. The process would be further scaled up in the 10TPD 2G ethanol Demonstration plant with integrated onsite enzyme production at Panipat.

BIO DIESEL

IOC, R&D has played a major role for Biodiesel promotion in India and studied complete value chain of Biodiesel, initiating from plantation to field trials. Some of the major initiatives include:

PLANTATION OF JATROPHA

- IOC, R&D taken up plantation on 70 hectares of Railway land at Surrendra Nagar in Gujarat as pilot project to have experience about large scale plantation of Jatropha. More than 1,050,000 plants planted at this site.
- DEVELOPMENT OF BIODIESEL TRANS-ESTERIFICATION PROCESS
- IOC (R&D) has developed the synthetic processes for the preparation of bio-diesel from various vegetable oils; which includes oil from Rice bran, Jatropha Curcas, karanjia, Palm, Sunflower etc. The process has been patented and scaled up to pilot plant level. Patent has been awarded in South Africa & Brazil.
- The developed process Know-how has been transferred to two parties in India.

- Work has also been carried out to develop process for in-situ preparation of biodiesel from Jatropha seeds.
- Synthesis of Biodiesel under microwave radiations/ultrasonic conditions carried out to reduce the reaction time and to improve the purity of glycerol.
- IOC, R&D was the first research centre with complete biodiesel testing facilities and assisted BIS to finalize B100 biodiesel specifications, IS15607:2005/2016.

TRIALS WITH INDIAN RAILWAYS/ TATA / HARYANA ROADWAYS

- The field trials have been conducted with 5%, 10% and 20% blends of Jatropha bio diesel in diesel on 16-cylinders Alco Diesel Locomotive Engine for power, specific fuel consumption, firing pressures and exhaust gas temperatures.
- Trial runs on Shatabdi and Jan Shatabdi express trains have been carried out successfully at 5% and 10% biodiesel.
- Indian Oil, jointly with Tata Motors launched field trial run on 43 buses plied for their employees at Tata Motors in Pune in March 2005. These buses were run on 10% biodiesel-diesel blends.
- Indian Oil, jointly with Haryana Roadways launched field trials on 40 buses of Gurgaon depot in April 2004. Twenty buses were run on 5% biodiesel-diesel blend and their smoke, fuel efficiency and drivability was compared with another set of twenty reference buses. A reduction of 10 - 15 % in smoke density was observed by the use of Biodiesel.

TECHNICAL FEASIBILITY OF TREE BORNE OIL SEEDS FROM CHHATISGARH FOR BIODIESEL PRODUCTION:

- Chattisgarh Bio-fuel Authority has indicated availability of 27 varieties of tree-borne oil seeds with total availability of around 0.825 MMTPA. The R&D centre studied the technical viability of using these seeds for bio-diesel production. Only 4 types of seeds had adequate oil content for their use in bio-diesel production apart from Jatropha Curcas & Karanjia oils.

2G ETHANOL TECHNOLOGY DEVELOPMENT

- **The environmental and socio-economic limitations of the first generation feedstocks have brought sharper focus to lignocellulosic biomass whose conversion technologies are still evolving and full-fledged commercial deployment is yet to happen. TIFAC report 2018 has shown that there is a surplus biomass availability of 178.8 million tons/year in India.**
- **Under the DBT program, R&D in this area was initiated in 2008 by DBT-ICT, Mumbai and in 2012 by DBT-IOC centre at Indian Oil R&D. DBT-ICT commissioned 10 tons/day plant in April 2016 based on ammonia & acid technology along with Indian Glycols Limited (IGL) at IGL, Kashipur.**
- **Indian Oil R&D centre has also developed 2G cellulosic bio-ethanol technology in its 250 kg/day pretreatment pilot plant commissioned with technical assistance from National Renewable Energy Laboratory (NREL) followed by batch scale simultaneous scarification and co-fermentation using indigenously developed enzyme.**
- **IndianOil R&D centre has optimized pretreatment process based on acid technology for indigenous Indian biomass feedstock such as wheat straw, rice straw. The centre has completed basic design engineering package and integrated the whole process from Biomass to ethanol along with integrated enzyme production. The commercialization of 2G ethanol technology in India would be highly beneficial to improve the availability of Bio-ethanol in India thus to achieve the target of 10% reduction in import of crude oil.**

OXIDATION STABILITY STUDIES FOR SHELF LIFE OF BIODIESEL:

- All type of Bio-diesels except palm oil bio-diesel has poor oxidation stability due to unsaturated hydrocarbon chain of ester. Study on stabilization of bio-diesel from Jatropha Curcas, Karanjia & Mustard Oil for desired oxidation stability during storage using various types of antioxidants has been completed and suitable antioxidants have been identified.

FEASIBILITY STUDIES FOR PRODUCTION OF BIO-DIESEL FROM MUSTARD OIL:

- As advised by MoP&NG, IOC R&D has examined the feasibility of production of bio-diesel from mustard oil as such, and after removal of erucic acid fat, meeting Bio-diesel specifications IS 15607:2005. Study of use of mustard oil bio-diesel in diesel was also carried out.

DEVELOPMENT OF HETEROGENEOUS CATALYST-BASED CONTINUOUS PROCESS FOR BIODIESEL PRODUCTION:

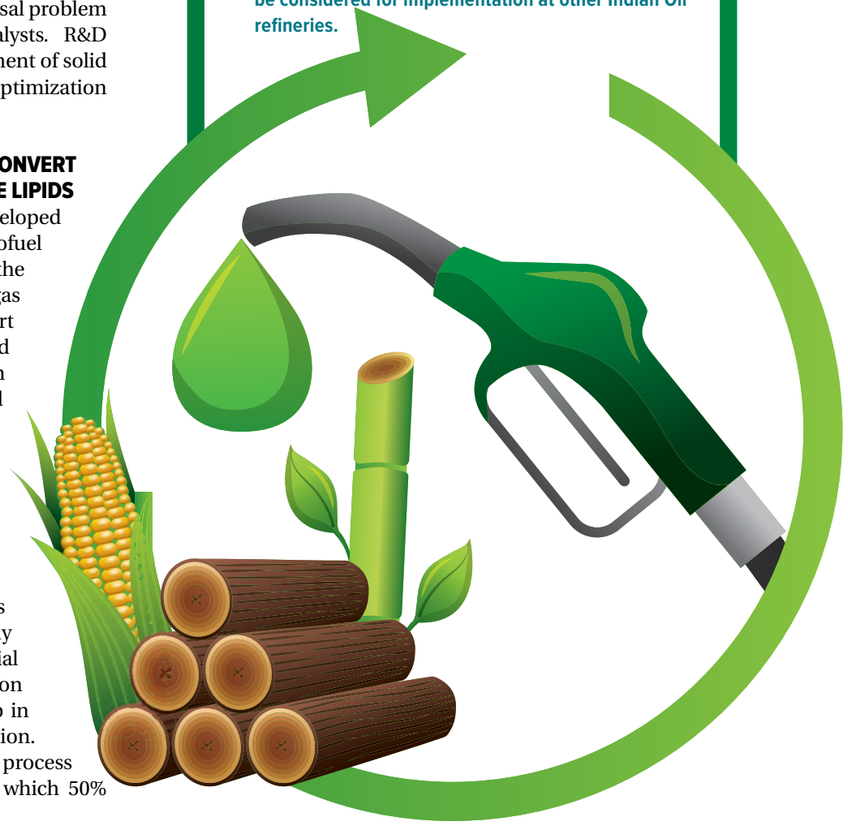
- Internationally lot of research work is on for the development of cost effective continuous heterogeneous catalyzed process with improved quality of bio-diesel & glycerol as also overcoming the effluent disposal problem required for homogeneous catalysts. R&D Centre is working on the development of solid catalysts based process and their optimization on fix bed pilot plant.

3G BIOFUELS TECHNOLOGY TO CONVERT CARBON DIOXIDE TO HIGH VALUE LIPIDS

- Indian Oil R&D Centre has developed a novel 3rd Generation Biofuel technology by integrating the LanzaTech USA anaerobic gas fermentation technology to convert carbon dioxide into acetic acid and IOC (R&D) aerobic fermentation technology to convert acetic acid to lipids (algal oil) including highly valuable Omega 3-fatty acids (DHAs). The lipids are then trans-esterified to esters followed by separation of Omega 3-fatty acids (DHAs) esters as high value product and remaining lipid esters are used as biodiesel fuel. This makes the process economically feasible. DHAs esters are essential components of nutrient formulation for children, adults and shall help in combating childhood malnutrition.
- The algae produced in the process contain about 50% lipids out of which 50% is DHA. After the removal of DHA from lipids the remaining lipids can be used to produce Biodiesel. The centre has installed world's first pilot facility at IOC R&D centre based on this process in 2018. The technology once proven at pilot scale has a potential to be a game changer technology for IOC for economical production of biodiesel as well as CO2 sequestration. IOC has plans to put up commercial plant at suitable refinery/ 2G ethanol plants where pure CO2 is available from the MEG/2G ethanol fermentation units and hydrogen from refineries. Commercialization of this technology would improve the availability of raw material for biodiesel production in an economical manner as well as would have high impact on GHG emissions reductions.

ETHANOL FROM PSA OFF GASES

- **Further to improve the availability of ethanol in the country, IOCL R&D is also exploring an alternate route of Ethanol production from PSA off gas of Hydrogen generation unit, using the gas fermentation technology of M/S LanzaTech, USA. Due diligence of the process has been carried out and it has been observed that ethanol production using LanzaTech Process can be implemented at IOCL refineries having Off gases with CO concentration >3.0 mol%. This will help Indian Oil to move towards meeting GOI mandate for ethanol blending in gasoline. Further the technology also helps in CO2 mitigation along with minimum water footprint per ton of ethanol produced. The quantity of Ethanol which can be produced at the refineries is in the range of 30,000-40000 TPA.**
- **LanzaTech has carried out studies with the synthetic PSA off gas composition and submitted a detailed techno-economic analysis which is quite favorable. Based on the above, the LanzaTech process appears to be technically feasible in making ethanol from PSA off gases at our refineries. Further, the ethanol production will also support our refineries in meeting the ethanol blending mandate in MS. Since CO2 is also consumed during the process, it will also help in reducing GHG emissions. IndianOil is in the process of putting up commercial plant at Panipat Refinery by 2020. Once successful at PR, the technology can be considered for implementation at other Indian Oil refineries.**



CO-PROCESSING OF VEGETABLE OIL TO GET GREEN DIESEL

- R&D has developed process to co-process the 5% vegetable oil with diesel in DHDT to get improved quality Diesel in refineries. Field trials have been successfully carried out in CPCL, Chennai getting green diesel of improved cetane no. The process can be commercialized in refineries provided the availability of desired raw material in India is improved.

BIOMETHANATION TECHNOLOGY

IndiaOil R&D Centre has developed two stage anaerobic process for converting various type of organic waste to biogas. In this technology in First stage, extraction of biodegradable organic fraction from waste as acid intermediates using optimized microbes while in second stage, the acid intermediates present in the leachate from first stage are converted into biogas by IOC R&D developed inoculums. The proprietary enviro-tolerant inoculants developed by IOC R&D has the following characteristics:

- Wild, not genetically modified
- Yielding high biogas and higher methane content (>80%),
- In situ conversion of CO2 to methane
- Suitable for multiple feedstock, feed agnostic
- Environ-tolerant, works efficiently at 10-550C

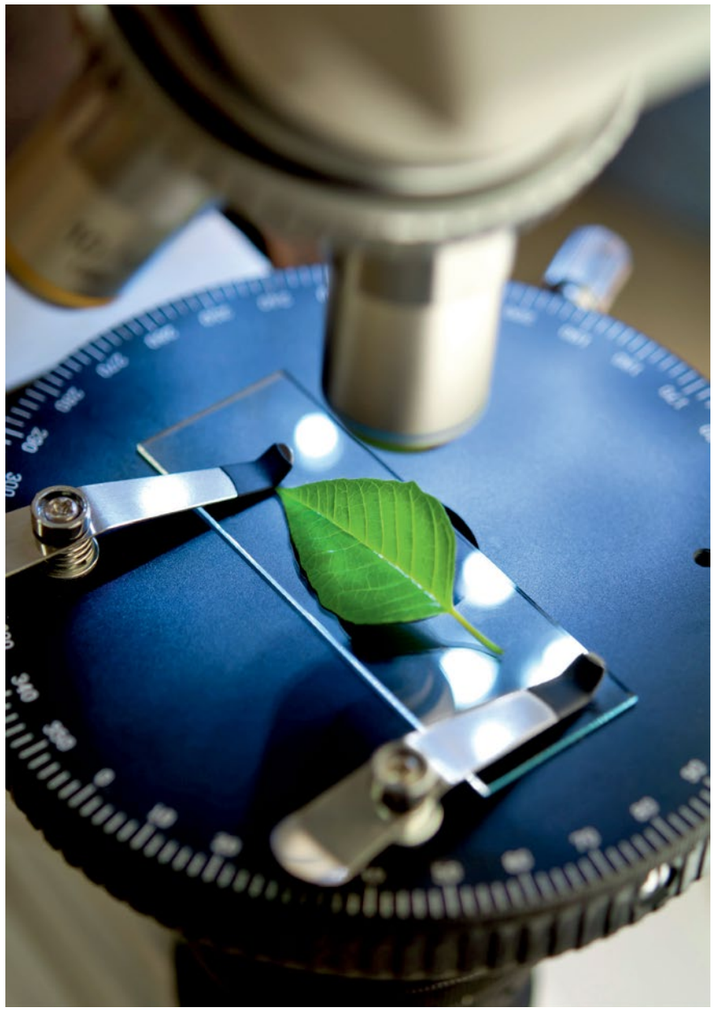
5TPD MSW based plant is working at IOC R&D Faridabad. BDEP of 20-100 TPD plant-based on cattle dung and other waste is developed. These plants are for conversion of organic waste to compressed biogas (CBG). The proprietary microbial blend has been retrofitted successfully in existing one stage bio-methanation plant of 5 TPD and 240 TPD plant based on press mud, chicken litter and MSW, resulting in higher biogas yield and higher methane content in the biogas.

The technology has been validated for almost all type of the organic wastes like food wastes, from various sources like food processing industries, households, and hospitality sector, Horticultural/plant residues, Animal waste, Dairy waste, Municipal Solid Waste (MSW), Press Mud, STP wastewater/sludge, etc. Based on the composition of feedstock fine tuning of the pre-processing of waste and microbial inoculum may required, which is the core capability Indian Oil, R& D centre.

THE BENEFITS OF BIO-METHANATION TECHNOLOGY ARE:

- Higher methane content in the biogas
- Better control on seasonal variations in gas generation rate
- Well-studied and scientifically validated process backed by sound technical inputs/ support
- Compact and cost effective plant engineering and design

–The writers are part of the R& D Centre of Indian Oil Corporation at Faridabad.



RENEWABLE BIO FUELS

BioJet fuel production process and standardization in the Indian context

BY A. K. SINHA, S. A. FAROOQUI & M. ANAND

THE REDUCED quality of crude oil and huge import bills necessitates it to find renewable alternatives. Industrialization and modernization have led to an increase in air transport load [1]. Air transport is completely dependent upon liquid hydrocarbon fuels, called aviation turbine fuel (ATF), aviation kerosene or jet fuels. Huge investments, approvals for changing the current jet engine design, and management of the approvals will be required for moving awav from liquid hydrocarbon-based fuels. The specification of ATF is the most stringent as compared to any other transportation fuel, which leads to further difficulties in finding appropriate alternatives. Liquid hydrocarbon fuels have high energy density, are relatively safe, and have reasonable storage stability, which make them the most suitable fuel for the aviation sector. These liquid fuels are a complex mixture of hydrocarbons whose composition changes with the manufacturing process and feed source (crude/renewable). Bio-based feedstocks, such as non-edible and used vegetable oils, can be used as alternative source for drop-in aviation fuel. The production of bio-based renewable ATF can be integrated into the present refinery configuration and would require less investment, indicating a great business, as well as, environmental opportunity for biofuels in the aviation sector.

Considering these environmental and business prospects, Defense Advanced Research Projects Agency (DARPA) sponsored different projects between 2005-2010 to US military [2] and different research organizations (Arizona State University, Sandia National Laboratories, The Energy & Environmental Research Center and Southwest Research Institute) across US for the production of jet fuels from oil-rich crops (plants, animal fats, algae, fungi and bacteria) which can be an alternative to petroleum-derived jet fuels [3, 4]. Private entities such as Cargill, Honeywell Aerospace and Honeywell UOP, who had expertise in these fuels production and development, worked in tandem with these organizations for the development of surrogates for petroleum-based military/commercial jet fuels, i.e., green jet fuels. The research work led to the technical approval (ASTM D7566) of the 50% biofuel/kerosene mix in June 2011 [5], which resulted in a

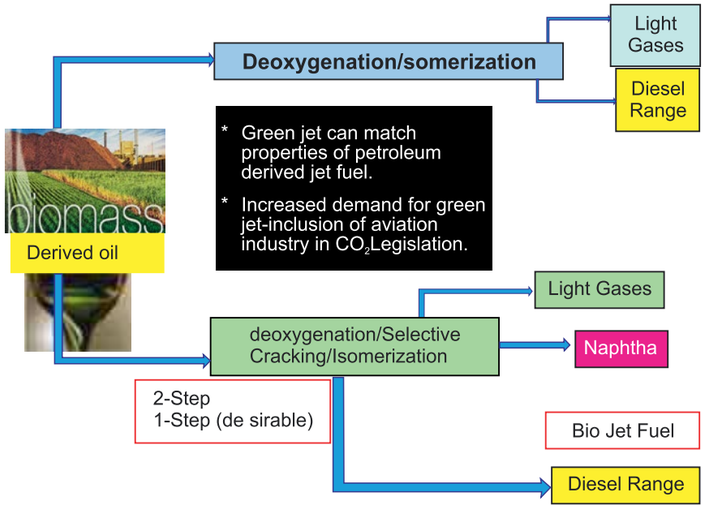


FIGURE 1: (left) Production process for biofuels developed by the Hydroprocessing Lab (CSIR-IIP) in single and two-step processes, from vegetable oils; (right) Pilot-plant at CSIR-IIP for the Bio-Jet fuel production.

rapid increase in interest and investment around the globe in bio-jet fuel.

In India, understanding the need and potential of bio-aviation fuels, CSIR-Indian Institute of Petroleum, a research lab, under the Ministry of Science and Technology, started the process development for bio-jet fuel under Indo-Canadian consortium collaborative project "Application of bio-fuel for aviation", in 2009, and produced fuel for evaluation by project partners. Engine manufacturer, Pratt and Whitney, Canada, the lead partner along with other project partners including Indian Institute of Science, Indian Institute of Technology, Kanpur, Indian Oil Corporation Ltd., and Hindustan Petroleum Corporation Ltd., carried the fuel analysis and evaluation as per required specification. CSIR-IIP developed an advanced single step process (Fig. 1) for simultaneous deoxygenation, selective cracking, aromatization and isomerization of plant-derived oils to produce drop-in biofuel for aviation [6]. The process is based on hydroprocessing of esters and fatty acids, for synthesizing hydrocarbons, an approved process according to ASTM D 7566 (Annexure A2). CSIR-IIP bio-jet fuel production process, is based on a non-infringing, patented catalyst and process (WO2016038633A1, WO2014049621A1, US20170165655A1, PCT/IN2015/050109), and is energy efficient, economical and environment-friendly (reduced NOx, SOx and Cox emissions). Bio-ATF is one of the main products produced from this process, which meets the ASTM D 1655 specifications. Bio-Naphtha and Renewable diesel are also produced along with Bio-ATF, in the process [7].

In October 2016, members of the International Civil Aviation Organization (ICAO) adopted a global scheme for aviation emission reductions. ICAO's Carbon Offset and Reduction Scheme for International Aviation (CORSIA) commences with a voluntary period (2021-2026), after which it will become mandatory for international aircraft operators to purchase the required offsets for the growth in CO2 emissions above 2020 levels. Use of Bio-Jet Fuels in aircrafts leads to around 80% reduction in the CO2 emissions, and hence has immense potential as an offset for CO2 emissions, for the aviation industry. To meet the objectives of ICAO's CORSIA and the demand for green fuels by airlines, adequate availability and mechanisms for distribution for these fuels, need to be made by Indian Airports. This would make Indian airports more attractive hub for international airlines who have signed the CORSIA agreement, leading to increased air-traffic to India and creation of jobs with a national manufacturing facility. Considering the ATF consumption in India (8 MMTPA) and 10% blending of bio-jet fuel in conventional ATF, 0.8 MMTPA of bio-jet fuel is required, which would lead to a foreign exchange saving of ~ ₹ 160 billion annually (Bio-ATF global prices @ 200 ₹/kg). Also, on feedstock supply chain side, more jobs will be created in rural and tribal areas due to farming and afforestation activities to grow oil-bearing plants and trees. Additionally, it will contribute to the fuel security of the nation.

Looking into these benefits of bio-jet fuel in India, Bureau of Indian Standards (BIS) was approached by CSIR-IIP and Indian Air Force (IAF) for making a standard similar to that available globally. All stakeholders (producers, users, research organizations), regulators and governmental organizations were brought together by BIS, which led to the development of Indian bio-jet fuel standards titled "Aviation Turbine Fuel (Kerosene Type, Jet A-1) Containing Synthesized Hydrocarbons—Specification" IS 17081-2009 [8]. The specifications considered the advancements and learning in the bio-jet fuel production technology in the past eight years from 2011-2019. The CSIR-IIP technology for making bio-jet fuel had some advantages (when compared to other technologies) which not only makes the bio-jet fuel technology more advanced but also techno-economically more feasible. The following sections highlight the different processes for the production of bio-jet fuel approved globally, describe the indigenous development of bio-jet fuel production process, and compare the properties of bio-aviation fuel with conventional crude-based jet fuels.

BIS SPECIFICATIONS FOR BIO-JET FUEL

Aviation fuel is an international product with global specifications and prices governed by the international market. The roadmap laid for global aviation industry forecasts, 50% replacement of conventional crude based jet fuel with renewable aviation fuel by 2030. Various airlines have already conducted test flights on blends of renewable bio-fuel with conventional jet fuel. It is also expected that by 2030, it would be necessarily important and mandatory for airline operators to use renewable aviation fuels. At that time if India is not prepared, it would affect India's aviation sector very badly and hamper its growth. Hence, it is of utmost necessity that India takes the necessary steps to utilize this innovation, which would not only produce bio-jet fuel at a lower cost but also produce fuel that is better than that presently available in the market.

Jet A-1 standard is available for the fuels derived from conventional sources such as crude oil, natural condensates, heavy oil, shale oil and oil sands. Jet fuel has contained synthesized hydrocarbons

Jet A-1 standard is available for the fuels derived from conventional sources such as crude oil, natural condensates, heavy oil, shale oil and oil sands

since the inception of specification IS 1571. However, these synthesized materials are generated from petroleum sources, oil shale and oils sands and exhibit properties requirements substantially similar to historically refined kerosene. The standard now includes the use of fuel blends containing components synthesized from non-petroleum, non-shale and non-oil sands sources. Specification IS-17081:2019 was developed by "Panel on Bio-Jet Fuels" and PCD3 committee of BIS to provide control for jet fuel blended with non-petroleum, non-shale and non-oil sands derived synthesized components.

The fuel property requirements defined in IS 1571 specification are batch-to-batch quality control tests which historically have provided fit-for-purpose jet fuel but assume that the jet fuel has a composition that is substantially similar to historical compositions. At present there is no basis for assumption that fuels having novel compositions provide fit for purpose performance in current aviation hardware even if they appear to meet specification of IS 1571. While the use of synthesized hydrocarbons is known and is an acceptable practice, the use of synthesized hydrocarbons from new sources requires specific guidance i.e. currently outside the scope of IS 1571. This guidance is found in specification IS 17081:2019.

The standard IS 17081:2019 details the specification of fuel blend, individual blending components as well as related processes. The fuel blends produced as such are assumed to be compositionally similar to the refined fuels generated to specification IS 1571 and can be controlled thereby in the distribution system.

The roadmap laid for global aviation industry forecasts, 50% replacement of conventional crude based jet fuel with renewable aviation fuel by 2030.

The proportion of synthetic components that can be blended with Jet A-1 derived from conventional sources as well as from specific non-conventional sources, is specified in IS 17081:2019.

BIO-JET FUEL PRODUCTION ROUTES

Based on the process of production, ASTM D 7566 and IS 17081 have approved following routes for the production of bio-jet fuels from non-petroleum sources:

a. FT Hydroprocessed SPK (Synthetic Paraffinic Kerosene): This process follows the Fischer-Tropsch synthesis route for the production of Synthetic Paraffinic Kerosene and is given in ASTM D 7566 Annexure A1 and IS 17081:2019. The Fischer-Tropsch paraffinic kerosene can be produced from lignocellulosic biomass through gasification followed by gas cleaning and synthesis over appropriate catalysts. The product obtained is a mixture of hydrocarbons with different chain lengths, ranging from light gases to high molecular weight greases.

b. Hydroprocessed Ester of Fatty Acids - Synthetic Paraffinic Kerosene (HEFA- SPK): The specification is given in ASTM D 7566 Annexure A2 and IS 17081:2019. This process involves the hydroprocessing of lipids (mainly oils and fats such as palm oil, jatropha oil, pongamia oil, camelina oil, algae oil, microbial oil, animal fats) converting them into hydrocarbons by the addition of hydrogen in the presence of a catalyst under high temperature and pressure. The configuration is similar to refinery hydroprocessing configuration.

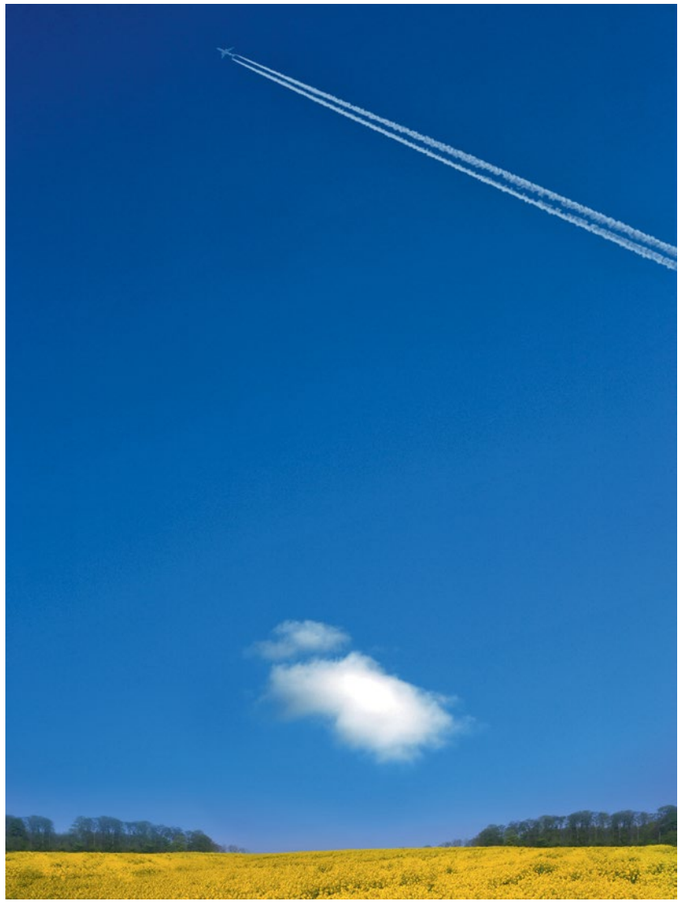
c. Synthesized Iso-Paraffins from Hydroprocessed Fermented Sugars: The specifications are given in ASTM D 7566 Annexure A3 and IS 17081:2019. This process involves hydroprocessing of farnesene produced from the fermentation of sugar to produce iso-paraffins, followed by fractional distillation.

d. Synthetic Kerosene with Aromatics derived by Alkylation of light Aromatics from non-Petroleum Sources: The specification is given in ASTM D 7566 Annexure A4 and IS 17081:2019. In this process aromatics produced from alkylation of non-petroleum derived light aromatics (primarily benzene) is mixed with FT derived olefins. This produces blend-stock for blending with conventional ATF to meet the specifications.

e. Alcohols-to-Jet Synthetic Paraffinic Kerosene (ATJ-SPK): The specifications are given in ASTM D 7566 Annexure A5 and IS 17081:2019. This process includes a series of reactions such as dehydration, oligomerization, hydrogenation of alcohols (ethanol or isobutanol) to produce a mixture of hydrocarbons which are then fractionated into jet range compounds.

HYDROPROCESSED ESTER OF FATTY ACIDS - SYNTHETIC PARAFFINIC KEROSENE (HEFA- SPK) FROM INDIGENOUS CSIR-IIP PROCESS

The CSIR-IIP process is feedstock flexible and can utilize various lipids/glycerides/free fatty acids, like algae oil, non-edible oils, used cooking oils, palm stearin, karanj, palm-distillate (PFAD), jatropha, etc. The process is simple and dovetailed to the current refinery hydrocracking process. CSIR-IIP developed catalyst has capabilities to perform several reactions in single step namely, hydro-deoxygenation, hydro-isomerization, hydro-cracking, hydro-cyclization, aromatization and hydrogenation to remove the oxygen present in these molecules and transform catalytically into hydrocarbons ranging between C1-C20. The bio-jet produced through this process at CSIR-IIP was used for the first biofuel powered flight in India on 27 August 2018, flown by Spicejet on a commercial aircraft (Bombardier Q400) with turboprop PW150A twin-engine, using 25% bio-jet fuel blended with petroleum derived Jet A-1 ATF. This was followed by the first ever flight on



a Russian aircraft with 10% bio-jet fuel blended with petroleum derived Jet A-1 ATF, when Indian Air Force flew a AN-32 (medium range military transport aircraft with Ivchenko AI-20 Soviet turboprop twin-engine), during 26th January 2019 Republic Day flypast.

PROCESS OF PRODUCTION

Pretreatment: The non-edible oil feed contains a significant quantity of impurity metals like, Na, K, P, Mg, Ca, Fe, etc., which need to be completely removed before they can be processed in the hydroprocessing unit, to maintain catalyst life as they lead to permanent catalyst poisoning. The metal present in renewable oils are generally present along with the compound of phosphorus which are called phospholipids. Currently, an in-house developed process is used for de-metallation. The pretreated feed contains < 10 PPM of all metals (Na, K, Ca, Mg, P, and Fe).

Conversion into Bio-Jet Fuel: The pre-treated oil is sent into the feed vessel of the hydrocracker setup. The hydrocracker setup is very similar to conventional petroleum-derived feed hydrocracking unit. The reactor is the heart of the setup and the catalyst is packed inside the reactor. The hydroconversion of vegetable oil into bio-jet fuel is highly exothermic, which increases the reactor temperature. To avoid temperature runaway, a part of the recycle gas or cold renewable oil feed is used as quench stream into the reactor. The triglyceride feed undergoes deoxygenation, hydrocracking, isomerization, cyclization, and aromatization simultaneously over the single catalyst bed. The reactions in the presence of hydrogen over the catalyst convert the non-edible oil feed into synthetic crude containing hydrocarbons ranging from C1-C22 along with water, CO, and CO2 as side products (Fig. 2). The reactor effluent is cooled and sent to a gas-liquid separators. The gas mixture after purifications is recycled back via a compressor into the reactor, while gaseous hydrocarbon stream can be utilized as fuel gas or sent for C3/C4 recovery. The synthetic crude liquid mixture contains C5-C22 hydrocarbons after water separation, which is sent to a fractional distillation unit. The synthetic crude is fractionated under vacuum into bio-naphtha (C5-C9 hydrocarbons); bio-jet (C9-C16 range hydrocarbons); and renewable diesel (>C16 hydrocarbons). The bio-jet cut meets the ASTM D 7566 and IS 17081:2019 specifications.

BY-PRODUCTS AND PRODUCT DISTRIBUTION

The bio-jet fuel produced from CSIR-IIP process meets all the required standards as per IS-17081:2019 specifications. The fuel also meets the American standard ASTM D7566 (after aromatics removal). The product contains >8% aromatics along with other hydrocarbons. The other products of the CSIR-IIP process are bio-gasoline and green-diesel, which can be used for land transportation and blended with conventional gasoline and diesel, respectively. Approximately 10-20 % renewable bio-gasoline and 25-45 % renewable diesel are produced in this process along with bio-jet fuel. The diesel produced is better in quality than conventional diesel (lower sulphur and higher cetane number), and the engine test results at CSIR-IIP indicated reduced emissions and better fuel efficiency than conventional diesel. The product distribution is given below in Figure 2.

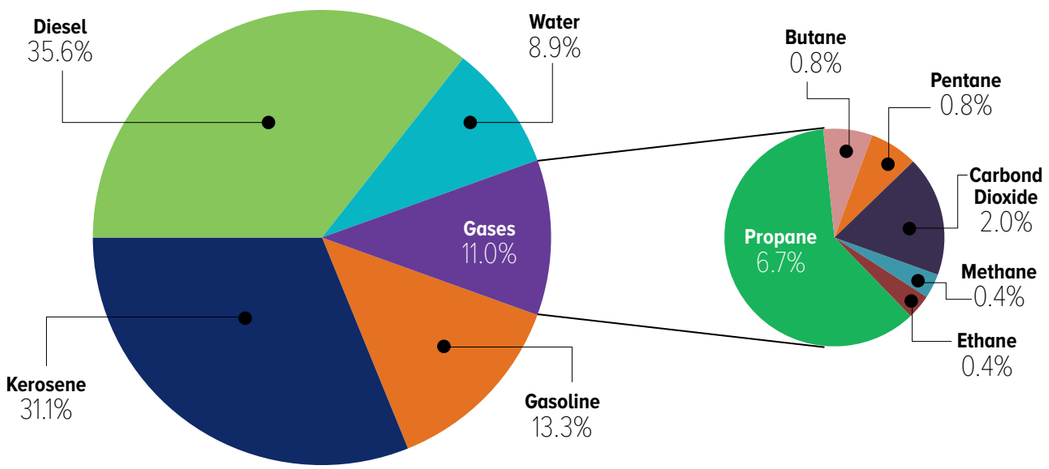


FIGURE 2: The product distribution of reactor effluent from hydrocracking of non-edible oils

TABLE 1: CSIR-IIP Technology in comparison with globally available Bio-Jet fuel technology

PROCESS/ PROPERTY	100% CSIR-IIP Bio-Jet	50:50 Jet A1: CSIR-IIP Bio-Jet	100% competing Green Jet	50:50 Jet A 1: competing Green Jet
	• Single-Reactor Process • Single Catalyst (Multifunctional Sulfided Catalysts - Cheap): (1) Deoxygenations (2) Isomerization (3) Selective cracking (4) Desired aromatics		Two-Reactor Process: Two Catalytic System (Noble metal - Costly) (1) Deoxygenations (2) Isomerization & Selective cracking • Aromatwic Addition (Extra Step in Supply Chain)	
Flash Point, °C	49	42.5	45	44.0
Freeze Point °C	-63	-58	-57	-58
Total Aromatics, vol%	12.8	15.7	<.03	9.5
Density (15°C), kg/m³	781.3	793.1	766.6	784.7
Particulate Contamination, mg/l	0.02	0.09		0.16

COMPARISON WITH GLOBALLY AVAILABLE BIO-JET FUEL

Globally Altair Paramount, California-based refinery, is dedicatedly producing bio-Jet fuel, and United Airlines is continuously flying from Los Angeles to San Francisco, using bio-jet fuel produced by Altair. The advantages of CSIR-IIP process for the production of bio-jet fuel are highlighted above in Table 1.

It must be noted that >8 % aromatics are produced in the CSIR-IIP HEFA process, where as no aromatics were produced in other HEFA jet-fuel process. To meet the fuel lubricity and smoke point specifications and also to be compatible with all aircraft engines, the competing aviation fuel should be blended with a minimum of 16 % aromatics Jet A1, to make the blend >8% (as required by ASTM). With CSIR-IIP bio-jet fuel, there is no need to add aromatics separately, to meet the engine and lubricity specifications. In the conventional ATF distribution system, additional aromatics blending creates additional step in the supply and distribution system and hence makes the supply chain management more complex. Since there is no need for blending any external aromatic streams in case of CSIR-IIP bio-jet fuel, the supply chain is simpler, and it is possible to use this fuel neat without blending with conventional ATF.

CONCLUSION

Aviation fuel presently being used by both civil and strategic sector follows the standard norms as per IS: 1571 (2018). Since the present standard does not include the aviation range synthesized hydrocarbons originating from sources other than petroleum based feedstocks, it was necessary to develop Indian Standards to include bio-jet fuels. In this context, Bureau of Indian Standards has published new specification "Aviation Turbine Fuel (Kerosene Type, Jet A-1) Containing Synthesized Hydrocarbons —Specification" IS 17081 : 2019 in January 2019. The standard covers almost all the technologies presently being used or capable of producing aviation fuel from sources other than petroleum based feedstocks. The new standards have now made it possible to use alternative and renewable fuels (including those derived from plant and tree oils) in the aircrafts in India.

—The writers are from CSIR-Indian Institute of Petroleum, Dehradun.

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STANDARDIZATION IN BIOFUELS SECTOR

REQUISITE INDIAN STANDARDS ON VARIOUS ALTERNATE FULES FROM DIFFERENT RAW MATERIALS

BY NAGAMANI T.

India's economic growth is closely connected to energy demand. The oil and gas sector is among the six core industries in India and plays a major role in influencing decision making for all the other important sections of the economy. Government of India, therefore, envisages to reduce the import of crude oil upto 30% by 2030 and is stressing on increased usage of alternate fuels including biofuels. Alcohols like ethanol, methanol, other chemicals like dimethyl ether, hydrogen, biogas, etc., are some of the alternate fuels identified for their potential use. These alternate fuels can be derived either from synthetic routes or biological origin. Many organizations in our country are carrying out R&D work in developing alternate fuels from different raw materials.

Taking cue from this, Petroleum and their related products of synthesis or biological origin Sectional Committee, PCD3, BIS has published requisite Indian standards on various alternate fuels. The Committee includes all the stakeholders like relevant ministries, oil industry, automotive industry, testing laboratories, R&D institutes, academia, consumer organizations, etc.

Indian Standards on Biofuels: Ethanol, biodiesel and biogas are major alternate fuels from biological origin.

Mostly used **automotive fuels** in our country are petrol and diesel and the relevant Indian Standards also had a provision for blending of alternate fuels from a decade.

Indian Standard for diesel, **IS 1460: 2017 Automotive Diesel Fuel - Specification (Sixth Revision)** permits usage of biodiesel upto 7%.

IS 2796: 2017 Motor Gasoline - Specification (Sixth Revision), Indian Standard for petrol, includes specifications for motor gasoline without blending as well with blending of 5% and 10% ethanol.

Ethanol is one of the most popular and used alternate fuel derived from biological sources. It being generated either from sugarcane, shorgum, millets, spoiled food grains, spoiled potatoes (1st generation ethanol) or from agricultural biomass like rice straw, wheat straw / agriwaste, tree borne oils, (2G/ 2nd generation ethanol), algae, wood waste, dry leaves (3G ethanol), etc.

The following are the standards on ethanol blended motor gasoline with varying percentages of blends, other than IS 2796:

a) IS 15464: 2004 Anhydrous alcohol for Automotive use–Specification [base ethanol for blending with motor gasoline]

b) IS 17021: 2018 E 20 Fuel Admixture of Anhydrous Ethanol and Gasoline As Fuel for Spark Ignited Engine Powered Vehicles Specification [E20 means 20% ethanol meeting IS 15464 and 80% motor gasoline meeting IS 2796],

c) IS 16634: 2017 E85 Fuel (Blend of Anhydrous Ethanol and Gasoline) —Specification [E85 means 85% of Ethanol and remaining motor gasoline]

d) IS 16629: 2017 Hydrous Ethanol for Use in ED 95 Automotive Fuel — Specification [hydrous ethanol for usage in diesel engines].

Biodiesel is also envisaged to decrease air pollution. In our country it is produced from various tree borne oils, animal fats etc. Used Cooking Oil (UCO) is also a potential raw material for biodiesel production and this subject is being considered for standardization. The following are the standards on biodiesel and its blended fuels, other than IS 1460:

IS 15607: 2016 Biodiesel (B100) — Fatty Acid Methyl Esters (FAME) — Specification (First Revision) was initially published in 2005, as a blendstock and for blending in diesel upto 20%. Also feedstock was limited to few plants like Jatropha and karanja. Fatty acids of methanol and ethanol were allowed. In the revised version, title and scope have been modified to include use of standalone biodiesel as pure fuel. Further it covers only fatty acid methyl esters (FAME). Requirement of glycerides, phosphorus have been included for a check on feedstock, as more variety of feedstock that can be used to manufacture biodiesel have been included in line with international practices.

IS 16531: 2016 Biodiesel Diesel Fuel Blend B6 to B20 - Specification permits blending of biodiesel from 6-20 % in diesel.

Indian standard on biogas, IS 16087: 2017 **Biogas (Biomethane) — Specification (first revision)** was revised to accommodate its usage for automotive purposes, as BioCNG.

Indian Standards on Synthetic fuels:

It is known fact that synthetic fuels like methanol and dimethyl ether (DME) fuels can be derived from chemical industries such as refining and fertilizer industries, incineration of municipal waste, agriwaste, etc. In the category, BIS have published the following Indian Standards:

a) IS 17075: 2019 Anhydrous Methanol for Use as a Blending Component in Fuels – Specification [base methanol for blending with motor gasoline]

b) IS 17076: 2019 M15 Fuel Admixture of Anhydrous Methanol and Motor Gasoline as Fuel for Spark Ignited Engines – Specification [M15 means 15% methanol meeting IS 17075 and 80% motor gasoline meeting IS 2796],

c) IS 16704: 2018/ISO 16861: 2015 Petroleum Products – Fuels (Class F) – Specifications of Dimethyl Ether (DME)

Currently, methanol fuels **(M100 & M85), 20% DME blending with Liquefied Petroleum Gas (LPG)** and **Hydrogen enriched Compressed Natural Gas (HCNG) for automotive purposes** are under various stages of preparation.

For aviation sector, BIS has published **IS 1571: 2018 Aviation Turbine Fuels Kerosine Type Jet-A - Specification (Tenth Revision),** for most commonly used aviation fuel. The standard also includes the provision of blending with synthesized components.

—The writer is Scientist 'D' from the PCD Department, Bureau of Indian Standards.

FUELS FOR TOMORROW

Biomass-based liquid and gaseous fuels –The new policy framework and sustainable initiatives in India towards creating a bio-economy

BY RAMAKRISHNA Y B

As per the current status, India represents one sixth of the human population and is one of the fastest growing economy. This economy is fuelled by Energy. Oil & Gas account for over 35% of the total energy consumed in the country. Over 83% of oil and around 46% of gas consumed in the country is imported. India is the third largest consumer of oil after US and China. The following table-1 captures the domestic production vs. import of oil and gas and the import dependency as of FY 2017-18.

Table-1

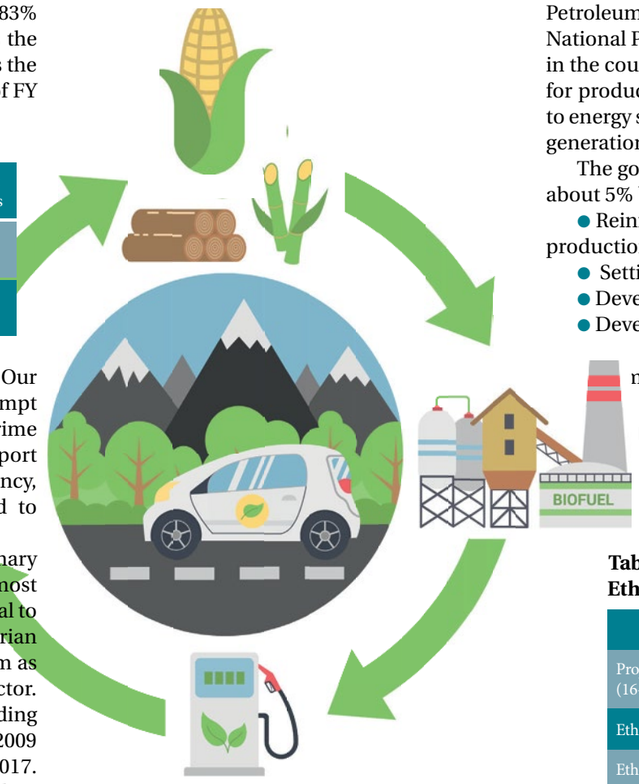
Type of Fuel	Domestic production	Import	Self sufficiency	Import dependency	Value of Import in Billion rupees
Crude oil (in MMT)	35.68	220.43	17.41 %	82.59%	5659.51
Natural gas/LNG (in BCM)	32.65	26.11	54.11%	45.89%	499.41

Source: Indian Petroleum & Natural Gas statistics 2017-18

India's Energy consumption has doubled since 2000 and is growing rapidly. Our import dependency is also growing significantly. It is imperative that we attempt towards energy self sufficiency while addressing our growing demand. The Prime Minister of India has set a target of achieving a minimum of 10% reduction in import by 2022. While many initiatives have been taken to increase energy efficiency, conservation and domestic production, home grown Bio fuels is expected to significantly contribute towards achieving this goal.

Biofuel Initiatives: World over Bio Fuel initiative is driven by two primary reasons. 1) Energy self reliance. 2) Environmental concerns. The third most important factor that drives Indian Bio Fuel initiative is the tremendous potential to improve the rural economy and employment generation. India Being an agrarian society and facing an agrarian crisis unprecedented, looking at Biofuel program as tool for rural development and provide much desired stability to agriculture sector.

Indian Biofuel program was started as early as in 2002-03 with Ethanol blending program and National Biodiesel mission. India adopted the Biofuel policy in 2009 with a target to do 20% blending of Ethanol in petrol and Biodiesel in diesel by 2017. However, the Ethanol Blending program was implemented haltingly with no clear roadmap, and the National Biodiesel program was a failure and was shelved in 2009 due to skewed unsuccessful implementation of Jatropha centric programme.



New Initiative after 2014: The new government under the leadership of Narendra Modi reviewed the Biofuel Program in 2014. It was a shocking and surprising revelation to find the implementation of EBP at 1.4% on pan-India basis and Biodiesel blending program had not started at all. A National Working Group was constituted in 2015 by MoP&NG to draw a new roadmap and suggest ways for effective implementation of the program. A Biofuel cell was also created in MoP&NG. Biofuel substitution was identified as a highly potential opportunity to achieve the Prime Minister's target to reduce fossil fuel import by 10% by 2022.

Working group on Biofuels: Since its inception in June 2015, the Working Group on Biofuels has set the direction through many activities.

- Assessment and evaluation of resources and technologies in the country.
- Travel to and Study Brazilian, North American, European and Asian countries Biofuel Program.
- Conducted several multi-stake holder meetings through seminars, conferences, interactive workshops, roadshows and visit to CSIR, ICAR labs, IITs, IISc, ARAI and many COE's on Biofuels and Bio energy.
- Interaction with MOA, MOS&T, MoEF&CC, MoRT, MHRD, MoRD, MoD, MoF&CS, BIS and State Biofuel boards.
- An involved continuous consultative process with Industry and Industry associations such as ISMA, BDAI, AIDA, UPDA, CII, SIAM.
- Initiated International cooperation with Brazil, EU, Participation in Bio Future platform, ART Fuel forum, etc.

National Policy on Biofuels 2018: Government of India took a decision to shift the Biofuel Program from Ministry of New and Renewable Energy to Ministry of Petroleum and Natural Gas in early 2018. MoP&NG soon came up with a New National Policy on Biofuel 2018. The new policy aims at increased usage of biofuels in the country. The policy aims to utilize, develop and promote domestic feedstock for production of biofuels, thereby increasingly substitute fossil fuels contributing to energy security. It also aims at climate change mitigation apart from employment generation in a sustainable way.

The goal of the policy is to achieve about 20% blending of Ethanol in petrol and about 5% blending of Biodiesel in diesel by 2030. This goal will be achieved by

- Reinforcing ongoing Ethanol/biodiesel supplies through increasing domestic production
- Setting up second generation Bio refineries
- Development of new feedstock for Biofuels
- Development of new technologies for conversion to Biofuels
- Creating suitable environment for Biofuels and its integration with nain fuels

Augmenting first generation Ethanol: The Table-2 below gives the present and projected Petrol consumption of petrol and the Ethanol requirement to achieve 10% blending by 2022. As can be seen from the table, there will be a deficit of over 2.6 billion litres in 2022 if we were to continue with the old policy and strategy on production and supply of Ethanol only from the molasses route.

Table-2
Ethanol Demand Supply

	Present Qty (Million Ltr)	Qty by 2022 (Million Ltr)
Projected MS Consumption (16-17)	31,780	44,040
Ethanol (10% blending)	3,170	4,404
Ethanol available - Molasses Route	1,110	1,800
Ethanol Deficit	2,068	2,604

The MoP&NG had already initiated several steps since 2015 to remove the hurdles in the Ethanol blending program and had significantly increased the Ethanol consumption for blending for blending from around 1.4% of Petrol pan India in 2014 to above 4% in 2017 sugar year. Some of these interventions included new administered pricing mechanism, amendment to IDR Act, which disallows State government control on denatured Ethanol and introduction of Interest subvention scheme for the Sugar industry.

The New Policy now allows Ethanol production for B-Molasses, sugarcane juice, sugar beet, sweet sorghum, corn, cassava, rotten potatoes, rotten food grains unfit for human consumption etc. This has already started yielding positive results and the Ethanol availability has considerably gone up and the pan India blending percentage is expected to cross 6.5% in 2019. The Sugar year is well on its way to achieve the intended target of consistent 10% blending across the country all 365 days a year.

Second Generation Ethanol: While the above initiatives are significant, it would still be inadequate keeping in mind the requirement of Ethanol for 20% blending by 2030 and beyond. It is important for India to look at various available resources and conversion technologies to augment Ethanol supplies.

Agriculture residues: India generates nearly a billion tonnes of agriculture residues every year. We burn nearly 200-300 million tonnes of surplus Biomass. DST-TIFAC has undertaken a study of surplus Biomass from 11 major crops in the country. Bio mass Study report was released on October 31, 2018. Data has been captured for 662 districts. Complete spatial data (1KmX1Km grid) with Biomass characterization data for the entire country would be available soon.

Conversion technologies: Working group on Biofuels has assessed various technologies from across the globe for converting these agricultural residues to Ethanol. Two Indian technologies developed by ICT, Mumbai with the support from DBT and Praj Industries in Pune stand out. They have successfully demonstrated 10TPD and 12TPD of biomass processing per day at Kashipur and Pune respectively and produce Ethanol. The Working Group has engaged them in identifying technological gaps and challenges of scaling in order to make this technology technically and commercially viable.

Bio refineries: OMC's and PSU's under Ministry of Petroleum have been directed to set up 12 commercial plants to convert the surplus agriculture residues into Ethanol with these technologies. Five of them are being fast tracked and work on ground has begun on four of them with Praj and DBT/ICT technologies. These plants besides Ethanol will also be producing Bioelectricity, Biogas and Biomanure as by-products eventually. These refineries are being designed to be zero effluent plants. Each of these plants will process approximately, 500 tonnes of agriculture residue per day and generate about 1,00,000 litres of Ethanol a day.

Potential and Opportunities: Second generation Ethanol or Ligno cellulosic Ethanol holds lot of promise towards not only meeting our energy needs but also in addressing the pressing environmental pollution being created due to burning of these residues by farmers for lack of market. A new market for agriculture residues will also help farmers generate additional income. Creation of Biomass supply chain for aggregation, densification, storage and transport for meeting timely and consistent supplies to processing Industry will lead to entrepreneurship development and employment generation in rural areas.

Ecosystem: In order to realize these potential government has taken several steps to attract investment into the sector. Some of them are:

- 100 percent off take guarantees for Ethanol extended by OMC's and a new pricing mechanism is on the anvil to offset the high operating expenses.
- Considering the high capital investment a Viability Gap funding (₹1900 crores fund) program is announced.
- Discussion initiated with Banks and financial Institutions to extend low cost financing with easy terms to attract private investment.
- Open to any technology and investment.
- Target to produce 1000 million litres of 2G Ethanol by 2025.

Third Generation Ethanol: Carbon capture and utilization: World's first Ethanol plant to produce 100KL/day of Ethanol from refinery tail end gas through gas fermentation technology is being set up at Panipat refinery by IOCL. After successful commissioning of Panipat plant, similar plants can be set up in all 28 refineries and in also in all the steel mills in India.

Biodiesel Blending Program: Despite starting the Biodiesel Mission in 2002-03, the actual Biodiesel blending in India started only in August 2015 as a pilot in 5-6 cities offering B5 (5% biodiesel blend in diesel) to customers. Since then many initiatives have been taken to support the Biodiesel industry to augment supplies. The major challenge the sector is facing is adequate availability of the raw material/feedstock for production of Biodiesel. Most of the Biodiesel produced in the country is from Palm stearin and mostly imported. Inadequate supplies of feedstock have limited the blending at less than 0.5% at the national level. The following Table-3 captures the current diesel consumption, biodiesel availability and shortages.

Table-3

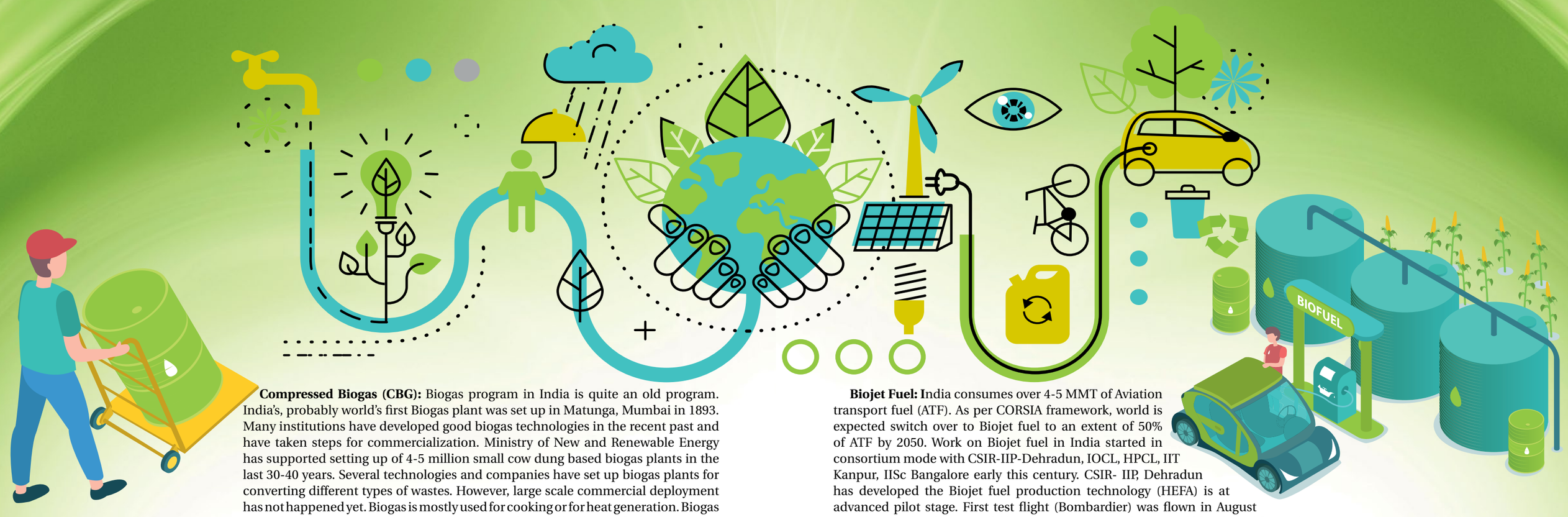
Biodiesel demand Vs. Installed capacity

Parameter	Quantity (In Million Litres)
Diesel consumption, Year 2016-2017	91970
Biodiesel requirement @ 5% blending	4600
Installed Capacity	1300
Requirement for additional Biodiesel generating capacity	3300

As can be seen from the above table, there is a wide gap in demand and supply. Even the installed capacity is underutilized. Several initiatives have been taken to bridge this gap by capacity utilization, adding more capacity and achieve 5% blending target by 2030 across the country. Some of these initiatives with respect to Biodiesel industry are given below.

- 5% blending started as pilot in Aug 2015 is now extended to several states and B5 is being sold through over 6000 retail outlets. It is being extended to more areas as the availability of Biodiesel goes up
- August, 2015 – Direct procurement of Biodiesel allowed for bulk consumers who can blend biodiesel with diesel for their own consumption.
- June, 2017 – Retailing of B100 allowed for the limited purpose of blending with HSD.
- May 2019 – Retailing of B100 allowed completely.
- Used Cooking Oil (UCO) is allowed to be converted to Biodiesel. A new regulatory mechanism has been put in place by FSSAI to control the use of UCO which is currently being diverted to secondary food market causing health concerns.
- A massive UCO campaign "RUCO" launched jointly by BDAI and FSSAI.
- 2MMT of Bio Diesel potential from UCO.
- A new UCO and feed stock production policy is on the anvil.
- Indigenous feed stock production program is under development.
- A program for growing Tree based oil seeds (TBO's) and short gestation non edible oil seed crops with the involvement of farming community across the country to be started.

The new Policy on Biofuels 2018 aims at climate change mitigation apart from employment generation in a sustainable way



Compressed Biogas (CBG): Biogas program in India is quite an old program. India's, probably world's first Biogas plant was set up in Matunga, Mumbai in 1893. Many institutions have developed good biogas technologies in the recent past and have taken steps for commercialization. Ministry of New and Renewable Energy has supported setting up of 4-5 million small cow dung based biogas plants in the last 30-40 years. Several technologies and companies have set up biogas plants for converting different types of wastes. However, large scale commercial deployment has not happened yet. Biogas is mostly used for cooking or for heat generation. Biogas upgraded to Compressed Biogas has much wider application including transport sector. It can be an excellent replacement for Natural gas (CNG). The Table-4 below gives various waste streams and biogas or CBG potential in the Country.

Table-4

Waste/Biomass stream	Estimated waste/ Biomass generated (in MMT/annum)	Bio-CNG (in MMT)	Compost Potential (in MMT)
Surplus Agri-residue	150	20	70
Spent wash/ Press mud	20	2	3
MSW	100	5	15
Sewage treatment plants		10	
Recoverable cattle dung	1100	25	285
Total potential		62	373

As we can see from the above table the potential to produce CBG from different waste streams is huge and it can replace 100% the natural gas and LNG imported into the country. Keeping this in mind MoP&NG has announced a program SATAT (Sustainable Alternative to Affordable Transportation) on October 1, 2018. OMC's and other PSU's have floated expression of Interest and response from the Industry is over whelming. SATAT envisages:

- 5000 commercial plants to be set up, each producing 7-10 tonnes of CBG a day processing 70-100 tonnes of feedstock by 2023.
- 100% off take guarantee by OMC's on CBG and manure.
- Low cost financing will be through SIFF (an UN agency set up in Delhi), NABARD, IREDA, ADB and other commercial banks.
- An eco-system where the entrepreneurs are encouraged to set up their own outlet, or sell through OMC's.
- Highly remunerative price of ₹46/KG +5% GST announced.
- A new CBG policy in the anvil.
- 15 MMT of CBG capacity to be built by 2023, which is approximately equivalent to 75% of total Natural Gas production in the country.

Biojet Fuel: India consumes over 4-5 MMT of Aviation transport fuel (ATF). As per CORSIA framework, world is expected switch over to Biojet fuel to an extent of 50% of ATF by 2050. Work on Biojet fuel in India started in consortium mode with CSIR-IIP-Dehradun, IOCL, HPCL, IIT Kanpur, IISc Bangalore early this century. CSIR- IIP, Dehradun has developed the Biojet fuel production technology (HEFA) is at advanced pilot stage. First test flight (Bombardier) was flown in August 2018 from Dehradun to Delhi by Spice Jet with 25% biojet fuel blended with ATF in one of the engines. The importance of this flight is highlighted by the presence of five Central Ministers to receive the maiden flight. Indian air force flew 3 AN32 with 10% biojet on Republic day 2019. Test flights will continue over next 2-3 years.

Amendment to IS:1571 giving provision to blend synthetic components as per IS 17089: 2019 ATF, Jet A-1, Kerosene type in line with Def Stan 91-091(issue 10) and assistance has also been derived from ASTM D 1655 and D 7566 carried out by BIS.

Other Biofuels (Drop in fuels, Bio-oil, Bio-Methanol, DME, etc.): The National Biofuel Policy 2018 also looks at a host of other biofuels including the futuristic fuels to be produced from agriculture residues and MSW. Some of the initiatives include:

- Shell R&D in Bangalore has developed MSW/Biomass to Drop in fuels through IH2 technology. A 5 TPD pilot plant has been commissioned already in 2017.
- First 1000 TPD plant is licensed to Sunlite by Shell will be commissioned near Kanpur. Project cleared by UP government
- Biomass to Bio-oil for co processing in Petroleum refineries to produce green Petrol, Green diesel is being piloted – Road map under development
- Industrial tail end gas, CO2 to liquid fuels projects shaping quite well
- An Apex body and five task force constituted in August 2017 by NITI Aayog on "Methanol Economy".
- Methanol and DME to be produced from MSW, Agri. residues and sewage sludge

The National Biofuel policy elaborates on financing, fiscal incentives, support for Research and development and demonstration, quality standards, distribution & marketing, pricing issues, import/export, role of stakeholders, International cooperation, Institutional mechanism etc. Besides the Working group on Bio Fuels, National Bio Fuel Coordination committee (NBCC) under the Chairmanship of Hon. Minister for Petroleum & Natural Gas has been set up which is actively pursuing the effective implementation of the program. The commitment of the Government towards biofuel program is unprecedented. The successful implementation of the program will not only help steadily move towards energy self reliance but will help boost the rural economy, employment generation and creating clean and green environment.

–The writer is Member Expert – Working group on Bio Fuels

Biogas after being upgraded to Compressed Biogas has much wider application including the transport sector

STANDARDS FIRST

THE LIST OF INDIAN STANDARDS PUBLISHED/REVISED

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13090 : 2018 Automotive Vehicles — Commercial Vehicles — Clutch Housings — Dimensions (First Revision)	आई एस 13090: 2018 ऑटोमोटिव वाहन – वाणिज्यिक वाहन – क्लच हाउसिंग – आयाम (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13090 : 1991 Automotive Vehicles — Commercial Vehicles — Clutch Housings — Dimensions	आई एस 13090: 1991 ऑटोमोटिव वाहन – वाणिज्यिक वाहन – क्लच हाउसिंग – आयाम
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13360 (Part 8/ Sec 8) : 2018/ ISO 3451-1 : 2008 Plastics – Methods of Testing Part 8 Permanence/Chemical Properties Section 8 Determination of ash – General Methods (First Revision)	आई एस 13360 (भाग 8 / सेक 8): 2018 / आई एस ओ 3451-1: 2008 प्लास्टिक – परीक्षण के तरीके भाग 8 स्थायी / रासायनिक गुण धारा 8 राख का निर्धारण – सामान्य तरीके (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13360 (Part 8/ Sec 8) : 2004/ ISO 3451-1 : 1997 Plastics – Methods of Testing Part 8 Permanence/Chemical Properties Section 8 Determination of ash – General Methods	आई एस 13360 (भाग 8 / सेक 8): 2004 / आई एस ओ 3451-1: 1997 प्लास्टिक – परीक्षण के तरीके भाग 8 स्थायी / रासायनिक गुण धारा 8 राख का निर्धारण – सामान्य विधियाँ
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13360 (Part 8/ Sec 11) : 2018/ISO 22088-2 : 2006 Plastics Methods of Testing Part 8 Performance/Chemical Properties Section 11 Determination of Environmental Stress Cracking (ESC) – Constant-Tensile Load Method (First Revision)	आई एस 13360 (भाग 8 / सेक 11): 2018 / आई एस ओ 22088-2: 2006 प्लास्टिक (परीक्षण के तरीके भाग 8 प्रदर्शन / रासायनिक गुण धारा 11 पर्यावरणीय तनाव क्रैकिंग (ई एस सी) का निर्धारण – निरंतर-तन्य भार विधि (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13360 (Part 8/Sec 11) : 1999/ISO 6252 : 1992 Plastics – Methods of Testing Part 8 Performance/Chemical Properties Section 11 Determination of Environmental Stress Cracking (ESC) – Constant- Tensile Stress Method	आई एस 13360 (भाग 8 / सेक 11): 1999 / आई एस ओ 6252: 1992 प्लास्टिक – परीक्षण के तरीके भाग 8 प्रदर्शन / रासायनिक गुण धारा 11 पर्यावरणीय तनाव क्रैकिंग (ई एस सी) का निर्धारण – लगातार- तन्य तनाव विधि
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 14147 (Part 1) : 2018/ ISO/IEC 7811-1 : 2014 Identification Cards – Recording Technique Part 1 Embossing (Second Revision)	आई एस 14147 (भाग 1): 2018 / आई एस ओ / आई ई सी 7811-1: 2014 पहचान पत्र – रिकॉर्डिंग तकनीक भाग 1 एम्बॉसिंग (दूसरा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 14147 (Part 1) : 2003/ ISO/IEC 7811-1 : 2002 Identification Cards – Recording Technique Part 1 Embossing (First Revision)	आई एस 14147 (भाग 1): 2003 / आई एस ओ / आई ई सी 7811-1: 2002 पहचान पत्र – रिकॉर्डिंग तकनीक भाग 1 एम्बॉसिंग (पहला संशोधन)
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 14147 (Part 2) : 2018/ ISO/IEC 7811-2 : 2014 Identification Cards – Recording Technique Part 2 Magnetic Stripe – Low Coercitivity (Second Revision)	आई एस 14147 (भाग 2): 2018 / आई एस ओ / आई ई सी 7811-2: 2014 पहचान पत्र – रिकॉर्डिंग तकनीक भाग 2 चुंबकीय धारी – कम संवेदनशीलता (दूसरा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 14147 (Part 2) : 2003/ ISO/IEC 7811-2 : 2001 Identification Cards – Recording Technique Part 2 Magnetic Stripe – Low Coercitivity (First Revision)	आई एस 14147 (भाग 2): 2003 / आई एस ओ / आई ई सी 7811-2: 2001 पहचान पत्र – रिकॉर्डिंग तकनीक भाग 2 चुंबकीय धारी – कम संवेदनशीलता (पहला संशोधन)
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 14202 (Part 6) : 2018/ISO/IEC 7816-6 : 2016 Identification Cards – Integrated Circuit Cards Part 6 Interindustry Data Elements for Interchange (Second Revision)	आई एस 14202 (भाग 6): 2018 / आई एस ओ / आई ई सी 7816-6: 2016 पहचान पत्र – एकीकृत सर्किट कार्ड भाग 6 इंटरचेंज (दूसरा संशोधन) के लिए इंटरएंड इंडस्ट्रीज डेटा एलिमेंट्स
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 14202 (Part 6) : 2013/ISO/IEC 7816-6 : 2004 Identification Cards – Integrated Circuit Cards Part 6 Interindustry Data Elements for Interchange (First Revision)	आई एस 14202 (भाग 6): 2013 / आई एस ओ / आई ई सी 7816-6: 2004 पहचान पत्र – एकीकृत सर्किट कार्ड भाग 6 इंटरचेंज (प्रथम संशोधन) के लिए इंटरएंड इंडस्ट्री डाटा तत्व
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 14401-2 : 2009 Earth- Moving — Field of Vision of Survillance and Rear-view Mirrors Part 2 Performance Criteria	आई एस: आई एस ओ14401-2: 2009 पृथ्वी-चल रहा है – सर्विलांस और रियर-व्यू मिरर के विजन का क्षेत्र भाग 2 प्रदर्शन मानदंड
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 14962 (Part 1) : 2018/ISO 965-1 : 2013 ISO General Purpose Metric Screw Threads – Tolerances Part 1 Principles and Basic Data (First Revision)	आई एस 14962 (भाग 1): 2018 / आई एस ओ 965-1: 2013 आई एस ओ सामान्य प्रयोजन मैट्रिक पेंच थ्रेड्स-सहिष्णुता भाग 1 सिद्धांत और बुनियादी डेटा (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 14962 (Part 1) : 2001/ISO 965-1 : 1998 ISO General Purpose Metric Screw Threads – Tolerances Part 1 Principles and Basic Data	आई एस 14962 (भाग 1): 2001 / आई एस ओ 965-1: 1998 आईएसओ सामान्य प्रयोजन मीट्रिक पेंच लड़ियाँ – भाग 1 सिद्धांत और बुनियादी डेटा
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 15414 : 2018/ISO/ IEC 4909 : 2006 Identification Cards – Financial Transaction Cards – Magnetic Stripe Data Content for Track 3 (First Revision)	आई एस 15414: 2018 / आई एस ओ / आई ई सी 4909: 2006 पहचान पत्र – वित्तीय लेनदेन कार्ड – ट्रैक 3 के लिए चुंबकीय पट्टी डेटा सामग्री (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 15414 : 2003/ISO 4909 : 2000 Bank Cards – Magnetic Stripe Data Content for Track 3	आई एस 15414: 2003 / आई एस ओ 4909: 2000 बैंक कार्ड – ट्रैक 3 के लिए चुंबकीय पट्टी डेटा सामग्री
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 15946 : 2018/ ISO 9539 : 2010 Gas welding Equipment – Materials for Equipment Used in Gas Welding, Cutting Allied Processes (First Revision)	आई एस 15946: 2018 / आई एस ओ 9539: 2010 गैस वेल्डिंग उपकरण – गैस वेल्डिंग में प्रयुक्त उपकरण के लिए सामग्री, संबद्ध प्रक्रियाओं को काटना (प्रथम संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 15946 : 2012/ISO 9539 : 1998 Materials for Equipment Used in Gas Welding, Cutting Allied Processes	आई एस 15946: 2012 / आई एस ओ 9539: 1998 गैस वेल्डिंग में प्रयुक्त उपकरण के लिए सामग्री, कटिंग एलाइड प्रक्रियाएं
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018

NEWS YOU CAN USE

ESCALATORS AND MOVING WALKS

ISO TC-178 Lift Escalators and Moving Walks organized by International Organization for Standardization (ISO) was held from April 1-5, 2019 in Frankfurt, Germany and attended by the ETD Department of BIS. Participating in the meeting helped highlight the importance of the escalators and moving walks standard and inclusion of Indian requirements in it. CEN TC-10 Chair agreed to provide latest EN 115 to the Indian mirror committee to compare and draft differences. India specific differences w.r.t ISO 8100-1 and ISO 8100-2 were highlighted during the meetings and the same shall be informed in the next meetings of WGs as well wherein the maintenance of these standards shall start.

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16893 (Part 3) : 2018/IEC 62660-3 : 2016 Secondary Lithium-Ion Cells for the Propulsion of Electric Road Vehicles Part 3 Safety Requirements	आई एस 16893 (भाग 3): 2018 / आई एस ओ 62660-3: 2016 इलेक्ट्रिक रोड वाहनों के प्रणोदन के लिए द्वितीयक लिथियम-आयन कोशिकाएं भाग 3 सुरक्षा आवश्यकताएँ
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16894 (Part 4) : 2018/ IEC 62485-4 : 2015 Safety Requirements for Secondary Batteries and Battery Installations Part 4 Valve- Regulated Lead-Acid Batteries for Use in Portable Appliances	आई एस 16894 (भाग 4): 2018 / आई ई सी 62485-4: 2015 सेकेंडरी बैटरी और बैटरी प्रतिष्ठान के लिए सुरक्षा आवश्यकताएँ भाग 4 वाल्व- पोर्टेबल उपकरणों में उपयोग के लिए विनियमित लीड-एसिड बैटरी
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही

NEWS YOU CAN USE

BIS ORDER ON CAUSTIC SODA

Meeting regarding issues related to enforcement of BIS (caustic soda) Order, 2018 organized by Ministry of Chemical and Fertilizers was held on April 3, 2019 in New Delhi and attended by the CHD Department of BIS. Views were presented by industries regarding hurdles faced by them with the Enforcement of BIS (caustic soda) Order, 2018 particularly with regard to the pricing and availability of caustic soda.

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 17556 : 2012 Plastics – Determination of the Ultimate Aerobic Biodegradability in Soil by Measuring the Oxygen Demand in a Respirometer or the Amount of Carbon Dioxide Evolved (First Revision)	आई एस /आई एस ओ 17556:2012 प्लास्टिक – एक रिस्पाइरोमीटर में ऑक्सीजन की मांग या कार्बन डाइऑक्साइड की मात्रा (पहला संशोधन) में ऑक्सीजन की मांग को मापकर मिट्टी में अंतिम एरोबिक बायोडिग्रेडेबिलिटी का निर्धारण।
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS/ISO 17556 : 2003 Plastics – Determination of the Ultimate Aerobic Biodegradability in Soil by Measuring the Oxygen Demand in a Respirometer or the Amount of Carbon Dioxide Evolved	आई एस /आई एस ओ 17556: 2003 प्लास्टिक – रेस्पिपेटर में ऑक्सीजन की मांग या कार्बन डाइऑक्साइड की मात्रा को मापने के द्वारा मिट्टी में अंतिम एरोबिक बायोडिग्रेडेबिलिटी का निर्धारण
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No., Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO/IEC 19794-10 : 2007 Information Technology — Biometric Data Interchange Formats Part 10 Hand Geometry Silhouette Data	आई एस / आई एस ओ / आई ई सी 19794-10: 2007 सूचना प्रौद्योगिकी – बॉयोमीट्रिक डेटा इंटरचेंज प्रारूप 10 हाथ ज्यामिति सिल्हूट डेटा
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही

No., Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO/IEC 29109-1 : 2009 Information Technology — Conformance Testing Methodology for Biometric Data Interchange Formats Defined in ISO/IEC 19794 Part 1 Generalized Conformance Testing Methodology	आई एस / आई एस ओ / आई ई सी 29109-1: 2009 सूचना प्रौद्योगिकी – बायोमीट्रिक डेटा इंटरचेंज फॉर्मेट्स के लिए अनुरूपता परीक्षण पद्धति आई एस ओ / आई ई सी 19794 में परिभाषित भाग 1 सामान्यीकृत अनुरूपता परीक्षण पद्धति
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No., Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO/IEC 30105 (Part 1) : 2016 Information Technology – IT Enabled Services-Business Process Outsourcing (ITES-BPO) Lifecycle Processes Part 1 Process Reference Model (PRM)	आई एस / आई एस ओ / आई ई सी 30105 (भाग 1): 2016 सूचना प्रौद्योगिकी – आई टी सक्षम सेवा–व्यवसाय प्रक्रिया आउटसोर्सिंग (आईटीईसी–बीपीओ) जीवनचक्र प्रक्रिया भाग 1 प्रक्रिया संदर्भ मसॅडल (पीआरएम)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No., Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO/IEC 30105 (Part 2) : 2016 Information Technology – IT Enabled Services-Business Process Outsourcing (ITES-BPO) Lifecycle Processes Part 2 Process Assessment Model (PAM)	आई एस / आई एस ओ / आई ई सी 30105 (भाग 2): 2016 सूचना प्रौद्योगिकी – आई टी सक्षम सेवा–व्यवसाय प्रक्रिया आउटसोर्सिंग (आईटीईसी–बीपीओ) जीवनचक्र प्रक्रिया भाग 2 प्रक्रिया मूल्यांकन मॉडल (पीआरएम)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No., Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO/IEC 30105 (Part 3) : 2016 Information Technology – IT Enabled Services-Business Process Outsourcing (ITES-BPO) Lifecycle Processes Part 3 Measurement Framework (MF) and Organization Maturity Model (OMM)	आई एस / आई एस ओ / आई ई सी 30105 (भाग 3): 2016 सूचना प्रौद्योगिकी – आई टी सक्षम सेवा–व्यवसाय प्रक्रिया आउटसोर्सिंग (आईटीईसी–बीपीओ) जीवनचक्र प्रक्रिया भाग 3 मापन फ्रेमवर्क (एमएफ) और संगठन परिपक्वता मॉडल (ओएमएम)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही

No., Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO/IEC 30105 (Part 4) : 2016 Information Technology – IT Enabled Services-Business Process Outsourcing (ITES-BPO) Lifecycle Processes Part 4 Term and Concepts	आई एस / आई एस ओ / आई ई सी 30105 (भाग 4): 2016 सूचना प्रौद्योगिकी – आईटी सक्षम सेवाएं–व्यवसाय प्रक्रिया आउटसोर्सिंग (आईटीईएस–बीपीओ) जीवनचक्र प्रक्रियाएं भाग 4 शब्द और अवधारणाएं
Date of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. & Year of the Amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title of the Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO/IEC 30105 (Part 5) : 2016 Information Technology – IT Enabled Services-Business Process Outsourcing (ITES-BPO) Lifecycle Processes Part 5 Guidelines	आई एस / आई एस ओ / आई ई सी 30105 (भाग 5): 2016 सूचना प्रौद्योगिकी – आईटी सक्षम सेवा–व्यवसाय प्रक्रिया आउटसोर्सिंग (आईटीईसी–बीपीओ) जीवनचक्र प्रक्रियाएं भाग 5 दिशानिर्देश
Date of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. & Year of the Amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title of the Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/IEC 60898-2 : 2016 Electrical Accessories – Circuit-Breakers for Overcurrent Protection for Household and Similar Installations Part 2 Circuit- Breakers for a.c. and d.c. operation (First Revision)	आई एस / आई ई सी 60898-2: 2016 विद्युत सहायक उपकरण – घरेलू और इसी तरह के प्रतिष्ठान के लिए अति–सुरक्षा के लिए सर्किट–ब्रेकर भाग 2 सर्किट। और डी.सी. ऑपरेशन (पहला संशोधन)
Date of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. & Year of the Amendment संशोधन की तिथि एवं वर्ष	IS/IEC 60898-2 : 2003 Electrical Accessories – Circuit-Breakers for Overcurrent Protection for Household and Similar Installations	आई एस / आई ई सी 60898-2: 2003 विद्युत सहायक उपकरण – घरेलू और इसी तरह के प्रतिष्ठान के लिए अति–सुरक्षा के लिए सर्किट–ब्रेकर
Date of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title of the Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/IEC 60947-2 : 2016 Low- Voltage Switchgear and Controlgear Part 2 Circuit- Breakers (First Revision)	आई एस / आई ई सी 60947-2: 2016 कम–वोल्टेज स्विचगियर और कंट्रोलगियर भाग 2 सर्किट-ब्रेकर (पहला संशोधन)
Date of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. & Year of the Amendment संशोधन की तिथि एवं वर्ष	IS/IEC 60947-2 : 2003 Low-Voltage Switchgear and Controlgear Part 2 Circuit-Breakers	आई एस / आई ई सी 60947-2: 2003 लो–वोल्टेज स्विचगियर और कंट्रोलगियर पार्ट 2 सर्किट–ब्रेकर
Date of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/IEC 60947-4-3 : 2014 Low- Voltage Switchgear and Controlgear Part 4 Contractors and Motor-Starters Section 3 a.c. semiconductor motor controllers and contractors for non-motor loads (Second Revision)	आई एस / आई ई सी 60947-4-3: 2014 कम–वोल्टेज स्विचगियर और कंट्रोलगियर भाग 4 ठेकेदार और मोटर–स्टार्टर धारा 3ए.सी.गैर–मोटर भार के लिए अर्धचालक मोटर नियंत्रक और ठेकेदार (दूसरा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS/IEC 60947-4-3 : 2011 Low-Voltage Switchgear and Controlgear Part 4 Contractors and Motor- Starters Section 3 a.c. semiconductor motor controllers and contractors for non-motor loads (First Revision)	आई एस / आई ई सी 60947-4-3: 2011 कम–वोल्टेज स्विचगियर और कंट्रोलगियर भाग 4 ठेकेदार और मोटर–स्टार्टर धारा 3ए.सी. गैर–मोटर लोड (पहले संशोधन) के लिए अर्धचालक मोटर नियंत्रक और ठेकेदार
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/IEC 61850-5 : 2013 Communication Networks and Systems for Power Utility Automation Part 5 Communication Requirements for Functions and Device Models	आई एस / आई ई सी 61850-5: 2013 संचार नेटवर्क और सिस्टम फॉर पावर यूटिलिटी ऑटोमेशन पार्ट 5 कार्यात्मकता और डिवाइस मॉडल के लिए संचार आवश्यकताएँ
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 4984 : 2016 Polyethylene Pipes for Water Supply – Specifaction (Fifth Revision)	आई एस 4984: 2016 पानी की आपूर्ति के लिए पॉलीइथाइलीन पाइप – विशिष्टता (पांचवां संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	16 June 2018	16 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	Amendment No. 1 May 2018	संशोधन नंबर 1 मई 2018
Date Of Cancellation रद्द होने की तिथि	15 Oct. 2018	15 अक्टूबर 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 6598 : 2018 Cellular Concrete for Thermal Insulation – Specification (First Revision)	आई एस 6598: 2018 थर्मल इंसुलेशन के लिए सेलुलर कंक्रीट – विशिष्टता (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	16 June 2018	16 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 6598 : 1972 Specification for Cellular Concrete for Thermal Insulation	आई एस 6598: 1972 थर्मल इंसुलेशन के लिए सेलुलर कंक्रीट के लिए विशिष्टता
Date Of Cancellation रद्द होने की तिथि	16 June 2018	16 जून 2018

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 1341 : 2018- Steel Butt Hinges — Specification (Sixth Revision)	आई एस 1341: 2018- स्टील बट टिका - विशिष्टता (छठा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	16 June 2018	16 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 1341 : 1992 Steel Butt Hinges — Specification (Fifth Revision)	आई एस 1341: 1992 स्टील बट टिका - विशिष्टता (पांचवां संशोधन)
Date Of Cancellation रद्द होने की तिथि	15 Oct. 2018	15 अक्टूबर 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 101 (Part 10/Sec 1) : 2018/ISO 13320 : 2009 Methods of Sampling and Test for Paints Varnishes and Related Products Part 10 Instrumental Analysis Section 1 Particle size Analysis — Laser Diffraction Methods	आई एस 101 (भाग 10 / सेक 1): 2018 / आई एस ओ 13320: 2009 नमूनों और पेंट वार्निश और संबंधित उत्पादों के लिए परीक्षण के तरीके भाग 10 वाद्य विश्लेषण अनुभाग 1 कण आकार विश्लेषण - लेजर विवर्तन तरीके
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 603-15 : 1999 Bonded Abrasive Products – Dimensions Part 15 Grinding Wheels for Cutting-Off on Stationary or Mobile Cutting-Off Machines	आई एस ओ 603-15: 1999 बॉन्डेड एब्रेसिव प्रोडक्ट्स - स्टेशनरी या मोबाइल कटिंग-ऑफ मशीनों पर कटिंग-ऑफ के लिए डायमेंशन पार्ट 15 ग्राइंडिंग व्हील्स
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 1448 [P : 141] : 2018 Methods of Test for Petroleum and Its Products [P :141] Determination of Apparent Density of Calcined Petroleum Coke by Helium Method (First Revision)	आई एस 1448 (पी:141):2018 पेट्रोलियम और उसके उत्पादों के लिए परीक्षण के तरीके (पी:141): हीलियम विधि (पहले संशोधन) द्वारा कैलक्लाइंड पेट्रोलियम कोक के स्पष्ट घनत्व का निर्धारण
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 1448 [P : 141] : 1992 Methods of Test for Petroleum and Its Products [P : 141] Determination of Apparent Density of Calcined Petroleum Coke by Helium Method	आई एस 1448 (पी:141):1992 पेट्रोलियम और उसके उत्पादों के लिए परीक्षण के तरीके (पी:141):हीलियम विधि द्वारा कैलक्लाइंड पेट्रोलियम कोक के स्पष्ट घनत्व का निर्धारण
Date Of Cancellation रद्द होने की तिथि	7 June 2018	

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 1448 [P : 167] : 2018/ISO 12185 : 1996 Methods of Test for Petroleum and Its Products [P : 167] Determination of Density — Oscillating U-Tube Method	आई एस 1448 (पी:167):2018/ आई एस ओ 12185: 1996 पेट्रोलियम और उसके उत्पादों के लिए परीक्षण के तरीके (पी:167):167, घनत्व का निर्धारण - ऑसिलिंग यू-ट्यूब विधि
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 3758 : 2018 Hooks, Aural — Specification (First Revision)	आई एस 3758:2018 हुक, अरियल - विशिष्टता (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	S 3758 : 1966 Specification for Hooks, Aural	आई एस 3758:2018 हुक के लिए विशिष्टता, आर्य
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 7309 : 2018/ ISO 22915-3 : 2014 Industrial Trucks — Verification Of Stability Reach and Straddle Trucks (Second Revision)	आई एस 7309: 2018 / आई एस ओ 22915-3: 2014 औद्योगिक ट्रक - स्थिरता रीच और स्ट्रैडल ट्रकों का सत्यापन (दूसरा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 7309 : 1993 Reach and Straddle forklift Trucks – Method of Stability Tests (First Revision)	आई एस 7309: 1993 रीच एंड स्ट्रैडल फोर्कलिफ्ट ट्रक्स - स्टेबिलिटी टेस्ट की विधि (पहला संशोधन)
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018

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NOTIFYING THE STANDARDS

Meeting conducted by Department of Commerce, Ministry of Consumer Affairs (MoC) to discuss on draft notification for mandatory implementation of IS 9573 (Part1), IS 9573 (Part2) 'Rubber hose for LPG' was held on April 3, 2019 in New Delhi and attended by the PCD Department of BIS. In past several issues raised by MoC have already been resolved by PCD. In this meeting, most of the members were in favour of mandatory implementation and MoC will take further action to notify the standards.

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 12375 (Part 6) : 2018/ ISO 7206-6 : 2013 Implants for Surgery — Partial and Total Hip Joint Prostheses Part 6 Endurance Properties Testing and Performance Requirements of Neck Region of Stemmed Femoral Components (First Revision)	आई एस 12375 (भाग 6): 2018 / आई एस ओ 7206-6: 2013 सर्जरी के लिए प्रत्यारोपण - आंशिक और कुल हिप संयुक्त प्रोस्टेटेसिस भाग 6 धीरज महिलाओं के अवयवों के परीक्षण और प्रदर्शन की आवश्यकताएं (प्रथम संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 12375 (Part 6) : 1998/ ISO 7206-6 : 1992 Implants for Surgery — Partial and Total Hip Joint Prostheses Part 6 Determination of Endurance Properties of Head and Neck Region of Stemmed Femoral Components	आई एस 12375 (भाग 6): 1998 / आई एस ओ 7206-6: 1992 सर्जरी के लिए प्रत्यारोपण - आंशिक और कुल कूल्हे संयुक्त प्रोस्टेटेसिस भाग 6 सिर और स्टेम क्षेत्र की गर्दन क्षेत्र के धीरज गुणों का निर्धारण
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13730 (Part 32) : 2018/IEC 60317-32 : 2015 Specifications for Particular Types of Winding Wires Part 32 Glass Fibre Wound, Resin or Varnish Impregnated, Bare or Enamelled Rectangular Copper Wire, Temperature Index 155 (First Revision)	आई एस 13730 (भाग 32): 2018 /आई ई सी 60317-32: 2015 घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशों भाग 32 ग्लास फाइबर घाव, राल या वार्निश की व्याख्या, नंगे या एनामेल्ड आयताकार तार, तापमान सूचकांक 155 (प्रथम संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 13730 (Part 32) : 1997/IEC 60317-32 : 1990 Specifications for Particular Types of Winding Wires Part 32 Glass-Fibre Wound, Polyester or Polyesterimide Varnish-Treated, Bare or Enamelled Rectangular Copper Wire, Temperature Index 155	आई एस 13730 (भाग 32): 1997 /आई ई सी 60317-32: 1990 घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशन भाग 32 ग्लास-फाइबर घाव, पॉलिएस्टर या पॉलिस्टरिमाइड वार्निश-इलाज, नंगे या एनामेल्ड आयताकार कॉपर वायर, तापमान सूचकांक 155
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13730 (Part 33) : 2018/IEC 60317-33 : 2015 Specifications for Particular Types of Winding Wires Part 33 Glass Fibre Wound, Resin or Varnish Impregnated, Bare or Enamelled Rectangular Copper Wire, Temperature Index 200 (First Revision)	आई एस 13730 (भाग 33): 2018 /आई ई सी 60317-33: 2015 घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशों भाग 33 ग्लास फाइबर घाव, राल या वार्निश की व्याख्या, नंगे या एनामेल्ड आयताकार तार, तापमान सूचकांक 200 (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 13730 (Part 33) : 1997/IEC 60317-33 : 1990 Specifications for Particular Types of Winding Wires Part 33 Glass-Fibre Wound, Silicon Varnish-Treated, Bare or Enamelled Rectangular Copper Wire, Temperature Index 200	आई एस 13730 (भाग 33): 1997 /आई ई सी 60317-33: 1990 घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशन भाग 33 ग्लास-फाइबर घाव, सिलिकॉन वार्निश-इलाज, नंगे या एनामेल्ड आयताकार तांबे के तार, तापमान सूचकांक 200
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13730 (Part 39) : 2018/IEC 60317-39 : 2015 Specifications for Particular Types of Winding Wires Part 39 Glass-Fibre Braided Resin or V arnish-Impregnated, Bare or Enamelled Rectangular Copper Wire, Temperature Index 180 (First Revision)	आई एस 13730 (भाग 39): 2018 /आई ई सी 60317-39: 2015 घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशों भाग 39 ग्लास-फाइबर लट रेजिन या वी तदपी-एचतमहदंजमक, नंगे या एनामेल्ड आयताकार कॉपर वायर, तापमान सूचकांक 180 (प्रथम संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 13730 (Part 39) : 2005/IEC 60317-39 : 1992 Specifications for Particular Types of Winding Wires Part 39 Glass-Fibre Braided Polyester or Polyesterimide Varnish-Treated, Bare or Enamelled Rectangular Copper Wire, Temperature Index 180	आई एस 13730 (भाग 39): 2005 /आई ई सी 60317-39: 1992 वाइंडिंग तारों के विशेष प्रकार के लिए निर्दिष्टीकरण भाग 39 ग्लास-फाइबर लट पॉलिएस्टर या पल्लीसेस्टरिमाइड वार्निश-इलाज, नंगे या एनामेल्ड आयताकार कॉपर वायर, तापमान सूचकांक 180
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13730 (Part 48) : 2018/IEC 60317-48 : 2012 Specifications for Particular Types of Winding Wires Part 48 Glass-Fibre Wound Resin or Varnish Impregnated, Bare or Enamelled Round Copper Wire, Temperature Index 155 (First Revision)	आई एस 13730 (भाग 48): 2018 /आई ई सी 60317-48: 2012 घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशों भाग 48 ग्लास-फाइबर घाव रल या वार्निश की व्याख्या की, नंगे या एनामेल्ड राउंड कॉपर वायर, तापमान सूचकांक 155 (प्रथम संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 13730 (Part 48) : 2005/IEC 60317-48 : 1999 Specifications for Particular Types of Winding Wires Part 48 Glass-Fibre Wound Resin or Varnish Impregnated, Bare or Enamelled Round Copper Wire, Temperature Index 155	आई एस 13730 (भाग 48): 2005 /आई ई सी 60317-48: 1999 घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशों भाग 48 ग्लास-फाइबर घाव राल या वार्निश की व्याख्या की जाती है, नंगे या एनामेल्ड राउंड कॉपर वायर, तापमान 155
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 14239 (Part 1) : 2018/ ISO 9714-1 : 2012 Orthopaedic Drilling Instruments Part 1 Drill Bits, Taps and Countersink Cutters (First Revisio	आई एस 14239 (भाग 1): 2018 /आई एस ओ 9714-1: 2012 आर्थोपेडिक ड्रिलिंग उपकरण भाग 1 ड्रिल बिट्स, नल और काउंटर्सिंक कटर (पहला रेविसियो)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 14239 (Part 1) : 1995/ISO 9714-1 : 1991 Orthopaedic Drilling Instruments – Drill Bits, Taps and Countersink Cutters	आई एस 14239 (भाग 1): 1995 / आई एस ओ 9714-1: 1991 आर्थोपेडिक ड्रिलिंग उपकरण - ड्रिल बिट्स, नल और काउंटर्सिंक कटर
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 14640 (Part 2) : 2018/ ISO 11084- 2 : 2006 Graphic Technology – Register Systems for Photographic Materials, Foils and Paper Part 2 Register Pin Systems for Plate Making	आई एस 14640 (भाग 2): 2018 / आई एस ओ 11084- 2: 2006 ग्राफिक टेक्नोलॉजी - प्लेट मेकिंग के लिए फोटोग्राफिक सामग्री, पन्नी और पेपर पार्ट 2 रजिस्टर पिन सिस्टम के लिए रजिस्टर सिस्टम
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 14771 : 2018/ISO 9112 : 2008 Truck and Bus Tyres — Methods of Measuring Tyre Rolling Circumstance — Loaded New Tyres (First Revision)	आई एस 14771: 2018 / आई एस ओ 9112: 2008 ट्रक और बस टायर - मापने के तरीके टायर रोलिंग सर्कुलेशन - लोड किए गए नए टायर (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 14771 : 2000 Automotive Vehicles — Method of Measuring Tyre Rolling Circumference — Loaded New Truck and Bus Tyres	आई एस 14771: 2000 ऑटोमोटिव वाहन - टायर रोलिंग माप की माप की विधि - नए ट्रक और बस टायर लोड किए गए
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 14788 : 2018/ISO 2322 : 2014 Styrene-Butadiene Rubber (SBR) — Emulsion and Solution-Polymerized Types — Evaluation Procedures (First Revision)	आई एस 14788: 2018 / आई एस ओ 2322: 2014 स्टाइलिश-ब्यूटाडाइन रबर (एसबीआर) - पायस और समाधान-पॉलिमराइज्ड प्रकार - मूल्यांकन प्रक्रिया (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 14788 : 2000/ISO 2322 : 1996 Styrene-Butadiene Rubber (SBR) — Emulsion and Solution-Polymerized Types — Evaluation Procedures	आई एस 14788: 2000 / आई एस ओ 2322: 1996 स्टाइलिश-ब्यूटाडाइन रबर (एसबीआर)- पायस और घोल-पॉलिमराइज्ड प्रकार - मूल्यांकन प्रक्रियाएं
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 14794 : 2018/ISO 2302 : 2014 Isobutene-Isoprene Rubber (IIR) — Evaluation Procedures (Second Revision)	आई एस 14794:2018/ आई एस ओ 2302-2014 इसोब्यूटीन-इसोप्रिन रबर (आईआईआर) - मूल्यांकन प्रक्रिया (दूसरा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 14794 : 2013/ ISO 2302 : 2005 Isobutene-Isoprene Rubber (IIR) — Evaluation Procedures (First Revision)	आई एस 14794-2013/ आई एस ओ 2302:2005 आइसोब्यूटीन-इसोप्रिन रबर (आईआईआर) - मूल्यांकन प्रक्रिया (पहला संशोधन)
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16197 (Part 6) : 2018/ IEC 62321- 6 : 2015 Determination of Certain Substances in Electrotechnical Products Part 6 Polybrominated Biphenyls and Polybrominated Diphenyl Ethers in Polymers by Gas Chromatography – Mass Spectrometry (GC-MS)	आई एस 16197 (भाग 6): 2018 / आई ई सी 62321- 6: 2015 विद्युत उत्पादों में कुछ पदार्थो का निर्धारण भाग 6 पोलीब्रोमीनेटड डाइफिनेएलस इथर, पोलिमर में, कोमेटोग्राफी गैस द्वारा-जन स्पेक्ट्रामेट्री (जी सी -एम एस)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16197 (Part 7/Sec 1) : 2018/IEC 62321-1 : 2015 Determination of Certain Substances in Electrotechnical Products Part 7 Hexavalent Chromium Section 1 Presence of Hrxavalent Chromium (CR(VI)) in colourless and Coloured corrosion–Protected Coatings on Metals by the Colorimetric Method	आई एस 16197 (भाग 7 / सेक 1): 2018 / आई ई सी 62321-1: 2015 इलेक्ट्रोटेक्निकल उत्पादों में कुछ निश्चित पदार्थो का निर्धारण (सीआर(वीआई)) विधि द्वारा धातु
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16437 (Part 3) : 2018/ ISO 15930- 3 : 2002 Graphic Technology – Prepress Digital Data Exchange – Use of PDF Part 3 Complete Exchange Suitable for Colour- Managed Workflows (PDF/X-3)	आई एस 16437 (भाग 3): 2018 / आई एस ओ 15930- 3: 2002 ग्राफिक प्रौद्योगिकी - डिजिटल डिजिटल एक्सचेंज - पीडीएफ भाग 3 का पूरा उपयोग कोलोर के लिए उपयुक्त- प्रबंधित वर्कफ्लोज (पीडीएफ / एक्स -3)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16716 : 2018 Robust Estimation for Location and Scale Parameters	आई एस 16716: 2018 स्थान और स्केल पैरामीटर के लिए मजबूत अनुमान
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16722 : 2018 Radio Frequency Identification (RFID) System for Automotive Applications — Specification	आई एस 16722: 2018 रेडियो फ्रीक्वेंसी आइडेंटिफिकेशन (आरएफआईडी) सिस्टम फॉर ऑटोमोटिव एप्लिकेशन - स्पेसिफिकेशन
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16726 : 2018 Textiles – Pouch for Ammunition and Grenades Made of Disruptive Pattern Nylon 6 6 – Specification	आई एस 16726: 2018 टेक्सटाइल - विघटनकारी पैटर्न नायलoन 66 से बने गोला-बारूद और हथगोले के लिए थैली - विशेष एकीकरण
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16936 : 2018/ IEC TR 62513 : 2008 Safety of Machinery — Guidelines for the Use of Communication Systems in Safety Related Applications	आई एस 16936: 2018 / आई ई सी टी आर 62513: 2008 मशीनरी की सुरक्षा - सुरक्षा अनुप्रयोगों में संचार प्रणालियों के उपयोग के लिए दिशानिर्देश
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही

NEWS YOU CAN USE

DISCUSSION ON PLASTICS

A seminar on 'Multi stakeholders Consultation on Plastics Packaging and Single Use Plastics' organized by Ministry of Chemicals and Fertilizers was held on April 4, 2019, in New Delhi and attended by the PCD Department of BIS. The seminar was attended by BIS officers. During the seminar, presentation were made by ICPE, IIP Mumbai, and others.
Also, a Solar Photovoltaic Modules Regulatory Authority meeting was held by the Ministry of New and Renewable Energy (MNRE) on April 5, 2019 in New Delhi and attended by the ETD Department of BIS. Inputs were provided regarding existing Indian Standards

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16939 : 2018 Optical Fibre Cables for Inside Premises (FTTx) Application	आई एस 16939: 2018 अंप्टिकल फाइबर केबल्स इनसाइड परिसर (एफटीटीएक्स) एप्लीकेशन के लिए
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	
Date Of Cancellation रद्द होने की तिथि	NA	
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16996 : 2018/IEC 60364-8-1 : 2014 Low-V oltage Electrical Installations — Energy Efficiency	आई एस 16996: 2018 / आई ई सी 60364-8-1: 2014 कम-वी वोल्टेज विद्युत प्रतिष्ठान - ऊर्जा दक्षता
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16997 : 2018/IEC 60364-7-712 : 2017 Requirements for Low- V oltage Special Electrical Installations or Locations — Solar Photovoltaic (PV) Power Supply Systems	आई एस 16997: 2018 / आई ई सी 60364-7-712: 2017 लो-वी वोल्टेज विशेष विद्युत प्रतिष्ठान या स्थान के लिए आवश्यकताएं - सौर फोटोवोल्टिक (पीवी) विद्युत आपूर्ति प्रणाली
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 17003 (Part 2) : 2018/ ISO/TS 80004-2 : 2015 Nanotechnologies — Vocabulary Part 2 Nano-Objects	आई एस 17003 (भाग 2): 2018 / आई एस ओ / टी एस 80004-2: 2015 नैनोटेक्नोलॉजीज - शब्दावली भाग 2 नैनो-ऑब्जेक्ट्स
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 20283-5 : 2016 Mechanical Vibration — Measurement of Vibration on Ships Part 5 Guidelines for Measurement, Evaluation and Reporting of Vibration with Regard to Habitability on Passenger and Merchant Ships	आई एस / आई एस ओ 20283-5:2016 यांत्रिक कंपन - माप पर कंपन की माप भाग 5 मापन के लिए दिशानिर्देश, मूल्यांकन और यात्री और व्यापारी जहाजों पर नियमितता के लिए कंपन के साथ रिपोर्टिंग
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 21573-1 : 2014 Building Contruction Machinery and Equipment – Concrete Pumps Part 1 Terminology and Commercial Specifications (First Revision)	आई एस / आई एस ओ 21573-1: 2014 भवन निर्माण मशीनरी और उपकरण – कंक्रीट पंप भाग 1 शब्दावली और वाणिज्यिक विनिर्देश (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS/ISO 21573-1 : 2006 Building Contruction Machinery and Equipment – Concrete Pumps Part 1 Terminology and Commercial Specifications	आई एस / आई एस ओ 21573-1: 2006 भवन निर्माण मशीनरी और उपकरण – कंक्रीट पंप भाग 1 शब्दावली और वाणिज्यिक विनिर्देश
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 21940-11 : 2016 Mechanical Vibration — Rotor Balancing Part 11 Procedures and Tolerances for Rotors with Rigid Behaviour	आई एस / आई एस ओ 21940-11रू 2016 मैकेनिकल वाइब्रेशन – रोटर बैलेंसिंग पार्ट 11 प्रक्रियाएं और कठोर व्यवहार के साथ रोटार के लिए सहिष्णुता
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS/ISO 1940-1 : 2003 Mechanical Vibration — Balance Quality Requirements for Rotors in a Constant (RIGID) State Part 1 Specifications and Verification of Balance Tolerances	आई एस / आई एस ओ 1940-1: 2003 मैकेनिकल वाइब्रेशन – एक स्थिर (आरआईजीआईडी) स्टेट पार्ट 1 में रोटर्स के लिए बैलेंस क्वालिटी रिक्वायरमेंट्स स्पेसिफिकेशन और बैलेंस टॉलरेंस का वेरिफिकेशन
Date Of Cancellation रद्द होने की तिथि	7 June 2018	7 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 25539-3 : 2011 Cardiovascular Implants — Endovascular Devices Part 3 Vena Cava Filters	
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO/IEC 27017 : 2015 Information Technology – Security Techniques – Code of Practice for Information Security Controls Based on ISO/IEC 27002 for Cloud Services	आई एस / आई एस ओ 25539-3: 2011 कार्डियोवस्कुलर इंप्लांट्स – एंडोवस्कुलर डिवाइसेस पार्ट 3 वेना कावा फिल्टर
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/IEC 60794-3-30 : 2008 Optical Fibre Cables Part 3 Outdoor Cables Section 30 Family Specification for Optical Telecommunication Cables for Lakes, River Crossings and Coastal Applications	आई एस / आई एस ओ / आई ई सी 27017: 2015 सूचना प्रौद्योगिकी – सुरक्षा तकनीक – क्लाउड सेवाओं के लिए आई एस ओ / आई ई सी 27002 के आधार पर सूचना सुरक्षा नियंत्रण के लिए अभ्यास का कोड
Date Of Establishment संशोधन की सख्या और तिथि	7 June 2018	7 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 3064 : 2018 Hand-made Drawing Paper – Specification (Second Revision)	आई एस 3064: 2018 हाथ से बना ड्राइंग पेपर – विशिष्टता (दूसरा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 3064 : 1980 Specification for Hand-made Drawing Paper (First Revision)	आई एस 3064: 1980 हाथ से बने ड्राइंग पेपर के लिए विशिष्टता (पहला संशोधन)
Date Of Cancellation रद्द होने की तिथि	20 June 2018	20 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 3976 : 2018 Safety Rubber Canvas Boots for Miners – Specification (Sixth Revision)	आई एस 3976:2018 माइनर्स के लिए सुरक्षा रबर कैनवास के जूते – विशिष्टता (छठा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 3976 : 2003 Safety Rubber Canvas Boots for Miners – Specification (Fifth Revision)	आई एस 3976: 2003 सेफ्टी के लिए रबड़ रबर कैनवास के जूते – विशिष्टता (पांचवां संशोधन)
Date Of Cancellation रद्द होने की तिथि	19 Dec. 2018	19 दिसंबर 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16717 : 2018 Chaplis,Frontier Pattern for General Purposes – Specification	आई एस 16717: 2018 चौप्लिस, सामान्य उद्देश्यों के लिए फ्रंटियर पैटर्न – विशिष्टता
Date Of Establishment संशोधन की सख्या और तिथि	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 4151 : 2015 Protective Helmet for Two Wheeler Riders-Specification (Fourth Revision)	आई एस 4151: 2015 प्रोटेक्टिव हेलमेट टू व्हीलर राइडर्स के लिए- विशिष्टता (चौथा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	Amendment No. 1 June 2018	संशोधन नंबर 1 जून 2018
Date Of Cancellation रद्द होने की तिथि	20 June 2018	20 जून 2018

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 12640 (Part 1) : 2016/IEC 61008-1 : 2012 Residual Current Operated Circuit-Breakers Without Integral Overcurrent Protection for Household and Similar Uses (RCCBs) Part 1 General Rules (Second Revision)	आई एस 12640 (भाग 1): 2016 / आई ई सी 61008-1: 2012 अवशिष्ट वर्तमान परिचालित सर्किट-ब्रेकेलू और समान उपयोगों (आरसीसीबीएस) के लिए अभिन्न वअमतबनततमदज संरक्षण के बिना ब्रेकर्स भाग 1 सामान्य नियम (दूसरा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	Amendment No. 2 May 2018	संशोधन संख्या 2 मई 2018
Date Of Cancellation रद्द होने की तिथि	30 Oct. 2018	30 अक्टूबर 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 12640 (Part 1) : 2016/IEC 61008-1 : 2012 Residual Current Operated Circuit-Breakers Without Integral Overcurrent Protection for Household and Similar Uses (RCCBs) Part 1 General Rules (Second Revision)	आई एस 12640 (भाग 1): 2016/ आई ई सी 61008-1: 2012 अवशिष्ट वर्तमान परिचालित सर्किट-ब्रेकेलू और समान उपयोगों (आरसीसीबीएस) के लिए अभिन्न वअमतबनततमदज संरक्षण के बिना ब्रेकर्स भाग 1 सामान्य नियम (दूसरा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	Amendment No. 3 May 2018	संशोधन संख्या 3 मई 2018
Date Of Cancellation रद्द होने की तिथि	30 Oct. 2018	30 अक्टूबर 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 1608 (Part 1) : 2018/ ISO 6892-1 : 2016 Metallic Materials – Tensile Testing Part 1 Method of Test at Room Temperature (Fourth Revision)	आई एस 1608 (भाग 1): 2018 / आई एस ओ 6892-1:2016 धातुई सामग्री – तनन परीक्षण भाग 1 कमरे के तापमान पर परीक्षण की विधि (चौथा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	16 June 2018	16 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 1608 : 2005/ISO 6892 : 1998 Metallic Materials – Tensile Testing at Ambient Temperature (Third Revision)	आई एस 1608: 2005 / आई एस ओ 6892: 1998 धातु सामग्री – परिवेश तापमान पर तनन परीक्षण (तीसरा संशोधन)
Date Of Cancellation रद्द होने की तिथि	16 June 2018	16 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 1608 (Part 3) : 2018/ ISO 6892-3 : 2015 Metallic Materials – Tensile Testing Part 3 Method of Test at Low Temperature	आई एस 1608 (भाग 3): 2018 / आई एस ओ 6892-3: 2015 धातु सामग्री – कम तापमान पर तनन परीक्षण भाग 3 परीक्षण की विधि
Date Of Establishment संशोधन की सख्या और तिथी	16 June 2018	16 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 1608 : 2005/ISO 6892 : 1998 Metallic Materials – Tensile Testing at Ambient Temperature (Third Revision)	आई एस 1608: 2005 / आई एस ओ 6892: 1998 धातु सामग्री – परिवेश तापमान पर तनन परीक्षण (तीसरा संशोधन)
Date Of Cancellation रद्द होने की तिथि	16 June 2018	16 जून 2018

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 45001 : 2018 Occupational Health and Safety Management Systems – Requirements with Guidance for Use (Second Revision)	आई एस / आई एस ओ 45001: 2018 व्यावसायिक स्वास्थ्य और सुरक्षा प्रबंधन प्रणाली – उपयोग के लिए मार्गदर्शन के साथ आवश्यकताएँ (दूसरा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 18001 : 2007 Occupational Health and Safety Management Systems – Requirements with Guidance for Use (First Revision)	आई एस 18001: 2007 व्यावसायिक स्वास्थ्य और सुरक्षा प्रबंधन प्रणाली – उपयोग के लिए मार्गदर्शन के साथ आवश्यकताएँ (पहला संशोधन)
Date Of Cancellation रद्द होने की तिथि	12 Mar 2021	12 मार्च 2021
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 5356-1 : 2015 Anaesthetic and Respiratory Equipment — Conical Connectors Part 1 Cones and Sockets (First Revision)	आई एस / आई एस ओ 5356-1: 2015 संवेदनाहारी और श्वसन उपकरण – शंक्वाकार संयोजक भाग 1 शंकु और कुर्सियां (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS/ISO 5356-1 : 2004 Anaesthetic and Respiratory Equipment — Conical Connectors Part 1 Cones and Sockets	आई एस /आई एस ओ 5356-1: 2004 एनेस्थेटिक एंड रेस्पिरेटरी इक्विपमेंट – शंक्वाकार संयोजक भाग 1 शंकु और सॉकेट
Date Of Cancellation रद्द होने की तिथि	18 June 2018	18 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 5832-4 : 2014 Implants for Surgery — Metallic Materials Part 4 Cobalt-Chromium-Molybdenum Casting Alloy	आई एस / आई एस ओ 5832-4: 2014 सर्जरी के लिए प्रत्यारोपण – धातु सामग्री भाग 4 कोबाल्ट-क्रोमियम-मोलिब्डेनम मिश्र धातु
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 5347 (Part 5) : 2000 requirements for Orthopaedic Implants : Part 5 Cobalt – Chromium-Molybdenum Casting Alloy (First Revision)	आई एस 5347 (भाग 5): आर्थोपेडिक प्रत्यारोपण के लिए 2000 आवश्यकताएंरू भाग 5 कोबाल्ट – क्रोमियम-मोलिब्डेनम कास्टिंग मिश्र धातु (पहला संशोधन)
Date Of Cancellation रद्द होने की तिथि	18 June 2018	18 जून 2018

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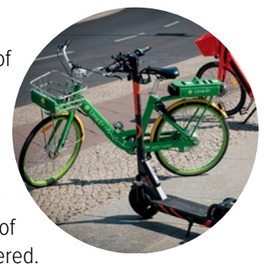
TECHNOLOGY SYMPOSIUM



Symposium on Globalization of Technologies and standards for light E-vehicle market in India was organized by EEPC INDIA on April 2, 2019 in New Delhi and attended by the TED Department of BIS. Key note address on standardization of Bicycles and E-cycles was delivered. Also, discussions on various issues related to EPAC were held.

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 6474-2 : 2012 Implants for Surgery — Ceramic Materials Part 2 Composite Materials Based on a High- Purity Alumina Matrix with Zirconia Reinforcement	आई एस / आई एस ओ 6474-2: 2012 सर्जरी के लिए प्रत्यारोपण - सिरेमिक सामग्री भाग 2 जिरकोनिया सुदृढीकरण के साथ एक उच्च शुद्धता एल्यूमिना मैट्रिक्स पर आधारित सामग्री
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 6670 : 2018 Storage of Potatoes — Guidelines (First Revision)	आई एस 6670: 2018 आलू का भंडारण - दिशानिर्देश (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 6670 : 1972 Guide For Storage of Potatoes	आई एस 6670: 1972 गाइड फॉर स्टोरेज ऑफ पोटैटो
Date Of Cancellation रद्द होने की तिथि	18 June 2018	18 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 8636-2 : 2007 Machine Tools — Test Conditions for Bridge-Type Milling Machines- Testing of the Accuracy Part 2 Travelling Bridge (Gantry-Type) Machines	आई एस / आई एस ओ 8636-2: 2007 मशीन टूल्स - ब्रिज-टाइप मिलिंग मशीन के लिए परीक्षण की स्थिति- सटीकता भाग 2 का परीक्षण ब्रिजिंग (गैन्ट्री-टाइप) मशीनें
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 9740 : 2018 Shaving Cream — Specification (First Revision)	आई एस 9740: 2018 शेविंग क्रीम - विशिष्टता (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 9740 : 1981 Specification for Shaving Cream	आई एस 9740: 1981 शेविंग क्रीम के लिए विशिष्टता
Date Of Cancellation रद्द होने की तिथि	18 June 2018	18 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 10651-5 : 2006 Lung Ventilators for Medical Use — Particular Requirements for Basic Safety and Essential Performance Part 5 Gas- Powered Emergency Resuscitators	आई एस/ आई एस ओ 10661-5:2006 चिकित्सा उपयोग के लिए फेफड़े के वेंटिलेटर - बुनियादी सुरक्षा के लिए विशेष आवश्यकताएं और आवश्यक प्रदर्शन भाग 5 गैस-संचालित आपातकालीन पुनर्जीवन
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 10651-6 : 2004 Lung Ventilators for Medical Use — Particular Requirements for Basic Safety and Essential Performance Part 6 Home-Care Ventilatory Support Devices	आई एस/ आई एस ओ 10651-6:2004 मेडिकल उपयोग के लिए फेफड़े वेंटिलेटर - मूल सुरक्षा और आवश्यक प्रदर्शन के लिए विशेष आवश्यकताएं भाग 6 होम-केयर वेंटीलेटरी सपोर्ट डिवाइस
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 11398 : 2018/ ISO 6155 : 1998 Machine Tools — Test Conditions for Horizontal Spindle Turret and Single Spindle Automatic Lathes — Testing of the Accuracy (First Revision)	आई एस 11398: 2018 / आई एस ओ 6155: 1998 मशीन टूल्स - क्षैतिज स्पिंडल बुर्ज और सिंगल स्पिंडल ऑटोमैटिक लाथ्स के लिए परीक्षण की स्थिति - सटीकता का परीक्षण (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 11398 : 1992/ISO 6155 : 1986 Test Chart For Horizontal Spindle Capstan, Turret and Single Spindle Automatic Lathes Part 2 Machinable Bar Diameter 25 MM or Less and Chuk Diameter Up to 160MM	आई एस 11398: 1992 / आई एस ओ 6155:1986 क्षैतिज स्पिंडल कैपस्तान के लिए टेस्ट चार्ट, बुर्ज और सिंगल स्पिंडल ऑटोमैटिक लैट्स पार्ट 2 मेकेनेबल बार डायमीटर 25 डड या इससे कम और चॉक डायमीटर 160एमएम तक
Date Of Cancellation रद्द होने की तिथि	18 June 2018	18 जून 2018

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AISC MEET

The 62nd AISC meeting organized by Automotive Research Association of India (ARAI) was held on April 11, 2019 at Pune and attended by the TED Department of BIS. Aroadmap for conversion of AIS to BIS Standards was deliberated upon. Also a meeting on Draft Omnibus Technical Regulation (OTR) on Machinery Safety organized by Department of Heavy Industries was held on April 12, 2019 at New Delhi and attended by the MED Department of BIS. The committee discussed on Draft Omnibus Technical Regulation (OTR). ISO/TC 215 'Health Informatics' meeting organized by ISO was held from April 13-17,2019, at Gothenburg and was attended by the MHD Department of BIS. Deliberations were held on new subjects (Indian Traditional Medicine related) for ISO standardization.

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 11958 (Part1) : 2018/ ISO 3070-1 : 2007 Machine Tools — Test Conditions for Testing the Accuracy of Boring and Milling Machines with Horizontal Spindle Part 1 Machines With Fixed Column and Movable Table (First Revision)	आई एस 11958 (भाग1): 2018 / आई एस ओ 3070-1: 2007 मशीन टूल्स - क्षैतिज स्पिंडल भाग 1 के साथ बोरिंग और मिलिंग मशीनों की सटीकता की जांच के लिए परीक्षण की स्थिति 1 फिक्स्ड कॉलम और जंगम तालिका (प्रथम संशोधन) के साथ मशीनें 1
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 11958 (Part1) : 1987 Test Chart for Boring And Milling Machines With Horizontal Spindle Part 1 Table Type Machines	आई एस 11958 (भाग1): 1987 क्षैतिज और धुरी भाग 1 टेबल प्रकार मशीनों के साथ बोरिंग और मिलिंग मशीनों के लिए टेस्ट चार्ट
Date Of Cancellation रद्द होने की तिथि	18 June 2018	18 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 11958 (Part1) : 2018/ ISO 3070-1 : 2007 Machine Tools — Test Conditions for Testing the Accuracy of Boring and Milling Machines with Horizontal Spindle Part 1 Machines With Fixed Column and Movable Table (First Revision)	आई एस 11958 ((भाग1): 2018 / आई एस ओ 3070-1: 2007 मशीन टूल्स - क्षैतिज स्पिंडल भाग 1 के साथ बोरिंग और मिलिंग मशीनों की सटीकता की जांच के लिए परीक्षण की स्थिति 1 फिक्स्ड कॉलम और जंगम तालिका (प्रथम संशोधन) के साथ मशीनें 1
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 11958 (Part1) : 1987 Test Chart for Boring And Milling Machines With Horizontal Spindle Part 1 Table Type Machines	आई एस 11958 (भाग1): 1987 क्षैतिज और धुरी भाग 1 टेबल प्रकार मशीनों के साथ बोरिंग और मिलिंग मशीनों के लिए टेस्ट चार्ट
Date Of Cancellation रद्द होने की तिथि	18 June 2018	18 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 11197 : 2016 Medical Supply Units	आई एस / आई एस ओ 11197: 2016 चिकित्सा आपूर्ति इकाइयाँ
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 13356 : 2015 Implants for Surgery — Ceramic Materials Based on Yttria-Stablized Tetragonal Zirconia (Y-TZP)	आई एस / आई एस ओ 13356: 2015 सर्जरी के लिए प्रत्यारोपण - येट्रिया पर आधारित सिरेमिक सामग्री- स्टैबलाइज्ड ट्रैट्रेगल जिरकोनिया (वाइ-टीजडपी)
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 5347 (Part 18) : 2002 Requirements for Orthopaedic Implants : Part 18 Ceramic Materials Based on Yttria- Stablized Tetragonal Zirconia (Y- TZP)	आई एस 5347 (भाग 18): 2002 आर्थोपेडिक प्रत्यारोपण के लिए आवश्यकताएंरु भाग 18 सिरेमिक सामग्री येट्रिया पर आधारित सिरेमिक सामग्री- स्टैबलाइज्ड ट्रैट्रेगल जिरकोनिया (वाइ-टीजडपी)
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No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13450 (Part 1/Sec 2) : 2018/IEC 60601-1-2 : 2014 Part 1 General Requirements for the Basic Safety and Essential Performance Section 2 Collateral Standard: Electromagnetic disturbances – Requirements and tests (First Revision)	आई एस 13450 (भाग 1 / सेक 2): 2018 / आई ई सी 60601-1-2: 2014 भाग 1 बुनियादी सुरक्षा और आवश्यक प्रदर्शन के लिए सामान्य आवश्यकताएँ अनुभाग 2 संपार्श्विक मानकरु विद्युतचुंबकीय गड़बड़ी - आवश्यकताएँ और परीक्षण (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13450 (Part 1/Sec 2) : 2012/IEC 60601-1-2 : 2007 Part 1 General Requirements for the Basic Safety and Essential Performance Section 2 Collateral Standard: Electromagnetic Compatibility – Requirements and tests	आई एस 13450 (भाग 1 / सेक 2): 2012 ६ /आई ई सी 60601-1-2: 2007 भाग 1 बुनियादी सुरक्षा और आवश्यक प्रदर्शन के लिए सामान्य आवश्यकताएँ अनुभाग 2 संपार्श्विक मानकरु विद्युत चुम्बकीय संगतता - आवश्यकताएँ और परीक्षण
Date Of Cancellation रद्द होने की तिथि	18 June 2018	18 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13450 (Part 2/Sec 47) : 2018/IEC 60601-2-47 : 2011 Medical Electrical Equipment Part 2 Particular Requirements for the Basic Safety and Essential Performance Section 47 Ambulatory Electrocardiographic Systems	आई एस 13450 (भाग 2 / सेक 47): 2018 / आई ई सी 60601-2-47: 2011 चिकित्सा विद्युत उपकरण भाग 2 बुनियादी सुरक्षा और आवश्यक प्रदर्शन के लिए विशेष आवश्यकताएं अनुभाग 47 एम्बुलेटरी इलेक्ट्रोकार्डियोग्राफिक सिस्टम
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13450 (Part 2/Sec 49) : 2018/IEC 60601-2-49 : 2011 Medical Electrical Equipment Part 2 Particular Requirements for the Basic Safety and Essential Performance Section 49 Multifunction Patient Monitoring Equipment (First Revision)	आई एस 13450 (भाग 2 / सेक 49): 2018 /आई ई सी 60601-2-49: 2011 चिकित्सा विद्युत उपकरण भाग 2 बुनियादी सुरक्षा और आवश्यक प्रदर्शन के लिए विशेष आवश्यकताओं धारा 49 बहुक्रिया रोगी निगरानी उपकरण (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13450 (Part 2/Sec 49) : 2009/IEC 60601-2-49 : 2001 Medical Electrical Equipment Part 2 Particular Requirements for the Safety and Essential Performance Section 49 Multifunction Patient Monitoring Equipment	आई एस 13450 (भाग 2 / सेक 49): 2009 / आई ई सी 60601-2-49: 2001 चिकित्सा विद्युत उपकरण भाग 2 सुरक्षा और आवश्यक प्रदर्शन के लिए विशेष आवश्यकताओं धारा 49 बहुक्रिया रोगी निगरानी उपकरण
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No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13730 (Part 20) : 2018/IEC 60317-20 : 2013 Specifications for Particular Types of Winding Wires Part 20 Solderable Polyurethane Enamelled Round Copper Wire, Class 155 (Second Revision)	आई एस 13730 (भाग 20): 2018 /आई ई सी 60317-20: 2013 घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशों भाग 20 सोल्डरेबल पॉलीयुरेथेन राउंड कॉपर वायर, क्लास 155 (दूसरा संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13730 (Part 20) : 2016/IEC 60317-20 : 2000 Specifications for Particular Types of Winding Wires Part 20 Solderable Polyurethane Enamelled Round Copper Wire, Class 155 (First Revision)	आई एस 13730 (भाग 20): 2016 /आई ई सी 60317-20: 2000 विशेष प्रकार के घुमावदार तारों के लिए विनिर्देशों भाग 20 सोल्डरेबल पॉलीयुरेथेन राउंड कॉपर वायर, क्लास 155 (प्रथम संशोधन)
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No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13730 (Part 27) : 2018/IEC 60317-27 : 2013 Specifications for Particular Types of Winding Wires Part 27 Paper Tape Covered Rectangular Copper Wire (First Revision)	आई एस 13730 (भाग 27): 2018 /आई ई सी 60317-27: 2013 विशेष रूप से घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशन भाग 27 पेपर टेप कवर आयताकार कॉपर वायर (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13730 (Part 20) : 2016/IEC 60317-20 : 2000 Specifications for Particular Types of Winding Wires Part 20 Solderable Polyurethane Enamelled Round Copper Wire, Class 155 (First Revision)	आई एस 13730 (भाग 20): 2016 /आई ई सी 60317-20: 2000 विशेष प्रकार के घुमावदार तारों के लिए विनिर्देशों भाग 20 सोल्डरेबल पॉलीयुरेथेन राउंड कॉपर वायर, क्लास 155 (प्रथम संशोधन)
Date Of Cancellation रद्द होने की तिथि	18 June 2018	18 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13730 (Part 27) : 2018/IEC 60317-27 : 2013 Specifications for Particular Types of Winding Wires Part 27 Paper Tape Covered Rectangular Copper Wire (First Revision)	आई एस 13730 (भाग 27): 2018/आई ई सी 60317-27: 2013 विशेष रूप से घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशन भाग 27 पेपर टेप कवर आयताकार कॉपर वायर (पहला संशोधन)
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13730 (Part 27) : 1996/IEC 60317-27 : 1990 Specifications for Particular Types of Winding Wires Part 27 Paper Covered Rectangular Copper Wire	आई एस 13730 (भाग 27): 1996 /आई ई सी 60317-27: 1990 घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशन भाग 27 कागज कवर आयताकार कॉपर वायर
Date Of Cancellation रद्द होने की तिथि	18 June 2018	18 जून 2018

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13730 (Part 28) : 2018/IEC 60317-28 : 2013 Specification for Particular Types of Winding Wires Part 28 Polyesterimide Enamelled Rectangular Copper Wire, Class 180 (First Revision)	आई एस 13730 (भाग 28): 2018 /आई ई सी 60317-28: 2013 घुमावदार तारों के विशेष प्रकार के लिए विशिष्टता भाग 28 पॉलिस्टरिमाइड एनामेल्ड आयताकार तांबे के तार, कक्षा 180 (प्रथम संशोधन)
Date Of Establishment संशोधन की सख्या और तिथि	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13730 (Part 28) : 1996/IEC 60317-28 : 1990 Specification for Particular Types of Winding Wires Part 28 Polyesterimide Enamelled Rectangular Copper Wire, Class 180	आई एस 13730 (भाग 28): 1996 /आई ई सी 60317-28: 1990 घुमावदार तारों के विशेष प्रकार के लिए विशिष्टता भाग 28 पॉलिसिमिमाइड आयताकार आयताकार तांबे के तार, कक्षा 180
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No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13730 (Part 31) : 2018/IEC 60317-31 : 2015 Specifications for Particular Types of Winding Wires Part 31 Glass Fibre Wound, Resin or Varnish Impregnated, Bare or Enamelled Rectangular Copper Wire, Temperature Index 180 (First Revision)	आई एस 13730 (भाग 31): 2018 /आई ई सी 60317-31: 2015 घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशों भाग 31 ग्लास फाइबर घाव, राल या वार्निश की व्याख्या, नंगे या एनामेल्ड आयताकार तार, तापमान सूचकांक 180 (पहला संशोधन)
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No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13730 (Part 31) : 1997/IEC 60317-31 : 1990 Specifications for Particular Types of Winding Wires Part 31 Glass Fibre Wound, Polyster or Polyesterimide Varnish-Treated, Bare or Enamelled Rectangular Copper Wire, Temperature Index 180	आई एस 13730 (भाग 31): 1997 /आई ई सी 60317-31: 1990 घुमावदार तारों के विशेष प्रकार के लिए विनिर्देशन भाग 31 ग्लास फाइबर वाउंड, पoलीस्टर या पoलिस्टरिमाइड वार्निश-ट्रीटेड, बेयर या एनामेल्ड आयताकार कoपर वायर, तापमान सूचकांक 180
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No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16222 : 2018/ ISO/TR 9212 : 2015 Hydrometry — Methods of Measurement of Bedload Disharge (First Revision)	आई एस 16222: 2018 / आई एस ओ / टी आर 9212रु 2015 हाइड्रोमेट्री - बेडलोड डिस्चार्ज (पहले संशोधन) के मापन के तरीके
Date Of Establishment संशोधन की सख्या और तिथि	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 16222 : 2014 Measurement of Liquid Flow in Open Channels — Methods For Measurement of Bedload Disharge	आई एस16222: 2014 ओपन चौनल्स में तरल प्रवाह का मापन - बेडलोड डिस्चार्ज के मापन के तरीके
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Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16684 : 2018/ IEC 62217 : 2012 Polymeric HV Insulators for Indoor and Outdoor Use- General Definitions, Test Methods and Acceptance Criteria	आई एस 16684:2018 / आई ई सी 62217: 2012 इंडोर और आउटडोर उपयोग-सामान्य परिभाषाओं, परीक्षण विधियों और स्वीकृति मानदंड के लिए पॉलिमर एचवी इंसुलेटर
Date Of Establishment संशोधन की सख्या और तिथि	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16750 : 2018/ISO 16742 : 2014 Iron Ores — Sampling of Slurries	आई एस 16750: 2018 / आई एस ओ 16742: 2014 आयरन ओरेज - नमूने का नमूना
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No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16763 : 2018/ ISO 7518 : 1983 Technical Drawings — Construction Drawings — Simplified Representation of Demolition and Rebuilding	आई एस 16763: 2018 / आई एस ओ 7518: 1983 तकनीकी चित्र - निर्माण चित्र - विध्वंस और पुनर्निर्माण का सरलीकृत प्रतिनिधित्व
Date Of Establishment संशोधन की सख्या और तिथि	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 16801 : 2018/ISO 4650 : 2012 Rubber – Identification – Infrared Spectrometric Methods	आई एस 16801: 2018 / आई एस ओ 4650: 2012 रबर - पहचान - इन्फ्रारेड स्पेक्ट्रोमेट्रिक तरीके
Date Of Establishment संशोधन की सख्या और तिथि	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 21534 : 2007 Non – Active Surgical Implants — Joint Replacement Implants — Particular Requirements	आई एस / आई एस ओ 21534: 2007 गैर - सक्रिय सर्जिकल प्रत्यारोपण - संयुक्त प्रतिस्थापन प्रत्यारोपण - विशेष आवश्यकताएं
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 21535 : 2007 Non-Active Surgical Implants — Joint Replacement Implants — Specific Requirements for Hip-Joint Replacement Implants	आई एस / आई एस ओ 21535: 2007 गैर-सक्रिय सर्जिकल प्रत्यारोपण - संयुक्त प्रतिस्थापन प्रत्यारोपण - हिप-संयुक्त प्रतिस्थापन प्रत्यारोपण के लिए विशिष्ट आवश्यकताएं
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO 21536 : 2007 Non-Active Surgical Implants — Joint Replacement Implants — Specific Requirements for Knee-Joint Replacement Implants	आई एस / आई एस ओ 21536: 2007 गैर-सक्रिय सर्जिकल प्रत्यारोपण - संयुक्त प्रतिस्थापन प्रत्यारोपण - घुटने-संयुक्त प्रतिस्थापन प्रत्यारोपण के लिए विशिष्ट आवश्यकताएं
Date Of Establishment संशोधन की सख्या और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही

NEWS YOU CAN USE

DRAFT QUALITATIVE REQUIREMENTS

Meeting regarding discussion on Draft Qualitative Requirements (QRs) and Trial Directives (TDs) for Ballistic Shield organized by Bureau of Police Research and Development was held on April 16, 2019 at New Delhi and attended by the TXD Department of BIS. During the meeting, inputs with regard to type of ammunition for API round, sequence of ballistic testing and requirements for burst testing were provided.

No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/IEC 61400-22 : 2010 Wind Turbines Part 22 Conformity Testing and Certification	आई एस / आई ई सी 61400-22: 2010 विंड टर्बाइन भाग 22 अनुरूपता परीक्षण और प्रमाणन
Date Of Establishment संशोधन की सस्ंया और तिथी	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/IEC 61439-1 : 2011Low-Voltage Switchgear and Controlgear Assemblies Part 1 General Rules	आई एस / आई ई सी 61439-1: 2011कम विद्युत दाब उपकरण का बटन और उपकरण को नियंत्रित भाग 1 सामान्य नियम
Date Of Establishment संशोधन की सस्ंया और तिथि	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/IEC 61689 : 2013 Ultrasonics – Physiotherapy Systems – Field Specifications and Methods of Measurement in the Frequency Range 0, 5 MHz to 5 MHz	आई एस/ आई ई सी 61689: 2013 अल्ट्रासोनिक्स – फिजियोथेरेपी सिस्टम – फील्ड रेंज और माप की विधियां आवृत्ति रेंज 0, 5 मेगाहर्ट्ज से 5 मेगाहर्ट्ज तक।
Date Of Establishment संशोधन की सस्ंया और तिथि	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/IEC 61812-1 : 2011 Time Relays for Industrial and Residential Use Part 1 Reuirements and Tests	आई एस / आई ई सी 61812-1: 2011 औद्योगिक और आवासीय उपयोग भाग 1 के लिए समय रिले और परीक्षण
Date Of Establishment संशोधन की सस्ंया और तिथि	18 June 2018	18 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No., Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/IEC 62155 : 2003 Hollow Pressurized and Unpressurized Ceramic and Glass Insulators for Use in Electrical Equipment with Rated Voltages Greater Than 1 000 V	आई एस / आई ई सी 62155:2003 खोखले दबाव और अनपेक्षितकृत सिरेमिक और ग्लास इंसुलेटर, जिसका उपयोग इलेक्ट्रिकल उपकरणों में उपयोग के लिए रेटेड वोल्टेज ग्रेटर 1000 वी से अधिक है
Date of Establishment संशोधन की सस्ंया और तिथि	18 June 2018	18 जून 2018
No. & Year of the Amendment संशोधन की तिथि एवं वर्ष	IS 5621 : 1980 Hollow Insulators for use in electrical equipment (First Revision)	आई एस 5621: 1980 विद्युत उपकरणों में उपयोग के लिए खोखले इन्सुलेटर (पहला संशोधन)
Date of Cancellation रद्द होने की तिथि	18 June 2018	18 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/IEC/IEEE 65700-19-03 : 2014 Bushing for DC Application	आई एस / आई ई सी / / आई ई ई ई 65700-19-03रू 2014 डी सी अनुप्रयोग के लिए झाड़ी
Date Of Establishment संशोधन की सस्ंया और तिथि	18 June 2018	18 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 326 (Part 1) : 2018/ ISO 212 : 2007 Methods of Sampling and Test for Natural and Synthetic Perfumery Materials Part 1 Sampling (Third Revision)	आई एस 326 (भाग 1): 2018 / आई एस ओ 212: 2007 प्राकृतिक और सिंथेटिक इत्र सामग्री के लिए नमूने और परीक्षण के तरीके भाग 1 नमूना (तीसरा संशोधन)
Date Of Establishment संशोधन की सस्ंया और तिथि	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 326 (Part 1) : 1984 Methods of Sampling and Test for Natural and Synthetic Perfumery Materials Part 1 Sampling (Second Revision)	आई एस 326 (भाग 1): 1984 प्राकृतिक और सिंथेटिक इत्र सामग्री के लिए नमूने और परीक्षण के तरीके भाग 1 नमूनाकरण (दूसरा संशोधन)
Date Of Cancellation रद्द होने की तिथि	20 June 2018	20 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 326 (Part 30) : 2018/ISO 18321 : 2015 Methods of Sampling and Test for Natural and Synthetic Perfumery Materials Part 30 Determination of Peroxide Value	आई एस 326 (भाग 30): 2018 / आई एस ओ 18321:2015 प्राकृतिक और सिंथेटिक इत्र सामग्री के लिए नमूने और परीक्षण के तरीके भाग 30 पेरोक्साइड मूल्य का निर्धारण
Date Of Establishment संशोधन की सस्ंया और तिथी	18 Ju 20 June 2018 ne 2018	18 जून 20 जून 2018 ने 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	NA	लागू नही
Date Of Cancellation रद्द होने की तिथि	NA	लागू नही

NEWS YOU CAN USE

MEET ON TOYS

Meeting on Draft Quality Control Order in respect of Toys organized by Department for Promotion of Industry & Internal Trade was held on April 15, 2019 at New Delhi and attended by the PCD & CMD-I Department of BIS. The meeting was held under the Chairmanship of Shri Ravinder, JS, DPIT. During the meeting, discussions were held on the draft QCO in respect of Toys.

No., Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 7621 : 2018/ISO 6055 : 2004 Industrial Trucks – Overhead Guards – Specification and Testing (Second Revision)	आई एस 7621: 2018 / आई एस ओ 6055: 2004 औद्योगिक ट्रक – ओवरहेड गार्ड – विशिष्टता और परीक्षण (दूसरा संशोधन)
Date Of Establishment संशोधन की सस्ंया और तिथि	18 June 2018 20 June 2018	18 जून 20 जून 2018 ने 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 7621 : 2000/ISO 6055 : 1997 High – Lift Rider Trucks – Overhead Guards – Specification and Testing (First Revision)	आई एस 7621: 2000 / आई एस ओ 6055: 1997 हाई – लिफ्ट राइडर ट्रक – ओवरहेड गार्ड – विशिष्टता और परीक्षण (फर्स्टविजन)
Date Of Cancellation रद्द होने की तिथि	18 June 20 June 2018 2018	18 जून 20 जून 2018 ने 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 8729 : 2018/ISO 384 : 2015 Laboratory Glass and Plastics Ware – Principles of Design and Construction of Volumetric Instruments (First Revision)	आई एस 8729: 2018 / आई एस ओ 384: 2015 प्रयोगशाला ग्लास और प्लास्टिक के बर्तन – वॉल्यूमेट्रिक इंस्ट्रूमेंट्स (प्रथम संशोधन) के डिजाइन और निर्माण के सिद्धांत
Date Of Establishment संशोधन की सस्ंया और तिथि	20 June 2018	20 जून 2018
No. And Year Of The Amendment संशोधन की तिथि एवं वर्ष	IS 8729 : 1977 Principles of Construction and Adjustment of Volumetric Glasware	आई एस 8729:1977 वॉल्यूमेट्रिक ग्लासवेयर के निर्माण और समायोजन के सिद्धांत
Date Of Cancellation रद्द होने की तिथि	20 June 2018	20 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS/ISO/IEC 90003 : 2014 Software Engineering – Guidelines for the Application of ISO 9001 : 2008 to Computer Software (First Revision)	आई एस/ आई एस ओ / आई ई सी 90003: 2014 सॉफ्टवेयर इंजीनियरिंग – आईएसओ 9001 के आवेदन के लिए दिशानिर्देशरू 2008 से कंप्यूटर सॉफ्टवेयर (पहला संशोधन)
Date Of Establishment संशोधन की सस्ंया और तिथि	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS/ISO/IEC 90003 : 2004 Software Engineering – Guidelines for the Application of ISO 9001 : 2000 to Computer Software	आई एस/ आई एस ओ / आई ई सी 90003: 2004 सॉफ्टवेयर इंजीनियरिंग – कंप्यूटर सॉफ्टवेयर के लिए आईएसओ 9001रू 2000 के आवेदन के लिए दिशानिर्देश
Date Of Cancellation रद्द होने की तिथि	20 June 2018	20 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 10118 (Part 1) : 2018 Code of Practice for Selection, Installation and Maintenance of Switchgear and Controlgear Part 1 General (First Revision)	आई एस 10118 (भाग 1): 2018 स्विचगियर और कंट्रोलगियर के चयन, स्थापना और रखरखाव के लिए अभ्यास का भाग 1 सामान्य (पहला संशोधन)
Date Of Establishment संशोधन की सस्ंया और तिथि	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 10118 (Part 1) : 1982 Code of Practice for Selection, Installation and Maintenance of Switchgear and Controlgear Part 1 General	आई एस 10118 (भाग 1): 1982 चयन प्रक्रिया, स्विचगियर और कंट्रोलगियर भाग 1 जनरल के चयन, स्थापना और रखरखाव के लिए
Date Of Cancellation रद्द होने की तिथि	20 June 2018	20 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	S 11910 : 2018/ ISO 3033-3 : 2005 Specification for Spearmint Oil (First Revision)	आई एस 11910: 2018 / आई एस ओ 3033-3: 2005 स्पीयरमिंट अ०इल के लिए विशिष्टता (पहला संशोधन)
Date Of Establishment संशोधन की सस्ंया और तिथी	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 11910 : 1986 Specification for Spearmint Oil, Food Grade	आई एस 11910:1986 स्पीयरमिंट अ०यल, खाद्य ग्रेड के लिए विशिष्टता
Date Of Cancellation रद्द होने की तिथि	20 June 2018	20 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13360 (Part 6/Sec 21) : 2018/ISO 871 : 2006 Plastics – Methods of Testing Part 6 Thermal Properties Section 21 Determination of Ignition Temperature Using a Hot-Air Furnace (First Revision)	आई एस 13360 (भाग 6 / सेक 21): 2018 /आई एस ओ 871: 2006 प्लास्टिक – परीक्षण के तरीके भाग 6 तापीय गुण धारा 21 एक गर्म हवा के भट्टी का उपयोग करते हुए तापमान का निर्धारण (प्रथम संशोधन)
Date Of Establishment संशोधन की सस्ंया और तिथि	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13360 (Part 6/Sec 21) : 2004/ISO 871 : 1996 Plastic – Methods of Testing Part 6 Thermal Properties Section 21 Determination of Ignition Temperature Using a Hot-Air Furnace	आई एस 13360 (भाग 6 / सेक 21): 2004 /आई एस ओ 871: 1996 प्लास्टिक – परीक्षण के तरीके भाग 6 तापीय गुण धारा 21 एक गर्म हवा के भट्टी का उपयोग करते हुए गति के तापमान का निर्धारण
Date Of Cancellation रद्द होने की तिथि	20 June 2018	20 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 13961 (Part 1) : 2018/ IEC 60832-1 : 2010 Live Working – Insulating Sticks and Attachable Devices Part 1 Insulating Sticks (First Revision)	आई एस 13961 (भाग 1): 2018 / आई ई एस 60832-1: 2010 लाइव वर्किंग – स्टिक्स और अटैचमेंट डिवाइसेस पार्ट 1 इंसुलेटिंग स्टिक्स (पहला संशोधन)
Date Of Establishment संशोधन की सस्ंया और तिथि	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 13961 (Part 1) : 1994 Live Working – Insulating Sticks and Attachable Devices Part 1 Insulating Sticks	आई एस 13961 (भाग 1): 1994 लाइव वर्किंग – इंसुलेटिंग स्टिक्स और अटैच डिवाइसेस पार्ट 1 इंसुलेटिंग स्टिक्स
Date Of Cancellation रद्द होने की तिथि	20 June 2018	20 जून 2018
No.,Year & Title Of The Indian Standards Established भारतीय मानकों की संख्या, वर्ष एवं शीर्षक	IS 14662 : 2018/ISO 8373 : 2012 Robots and Robotic Devices – Vocabulary (First Revision)	आई एस 14662रू 2018 / आई एस ओ 8373: 2012 रोबोट और रोबोटिक उपकरण – शब्दावली (पहला संशोधन)
Date Of Establishment संशोधन की सस्ंया और तिथी	20 June 2018	20 जून 2018
No. and year of the amendment संशोधन की तिथि एवं वर्ष	IS 14662 : 1999/ ISO 8373 : 1994 Manipulating Industrial Robots – V ocabulary	आई एस 14662: 1999 / आई एस ओ 8373: 1994 मैनीपुलेटिंग इंडस्ट्रियल रोबोट्स – वी ऑक्यूलर
Date Of Cancellation रद्द होने की तिथि	20 June 2018	20 जून 2018

NEW ADDITIONS TO OUR SHELVES

The BIS' collection of standards literature is always being supplemented

■ भाषा. भाषाविद. साहित्य.
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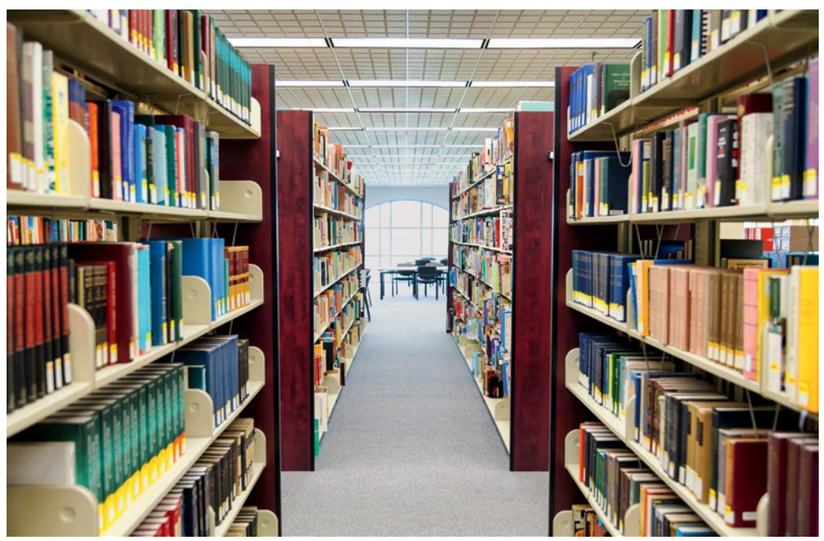

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NEWS THAT MATTERS

ROUND-TABLE WORKSHOP

A ROUND-TABLE WORKSHOP ON NEW 2016 EDITIONS OF SEISMIC CODES

A round-table workshop on New 2016 Editions of Seismic Codes (IS 1893 Part 1 and IS 13920), organized by IIT Gandhinagar was held on April 8, 2019, at Gandhinagar. The workshop saw the participation of officials of the CED of BIS who briefed the participants about further developments under earthquake engineering committee, CED 39 of BIS related to the seismic codes - IS 1893 and IS 13920. Also, the 42nd meeting of Pacific Area Standards Congress focussed on coperation between standards development bodies.

MEETING ON CAUSTIC SODA

PRICING AND AVAILABILITY OF CAUSTIC SODA DISCUSSED AT MEET

A meeting regarding issues related to Enforcement of BIS (caustic soda) Order, 2018 was organized by the Ministry of Chemical and Fertilizers on April 3, 2019 in New Delhi, which saw the participation of the CHD Department of BIS. At the meet, views were presented by industries regarding hurdles faced by them with the Enforcement of BIS (caustic soda) Order, 2018 particularly with regard to the pricing and availability of caustic soda.

RUBBER HOSE FOR LPG

MINISTRY OF CONSUMER AFFAIRS DISCUSS DRAFT NOTIFICATION FOR MANDATORY IMPLEMENTATION OF STANDARDS

A meeting conducted by Department of Commerce, MoC to discuss on draft notification for mandatory implementation of IS 9573(Part1), IS 9573(Part2) 'Rubber hose for LPG' was held on April 3, 2019 in New Delhi that saw the participation of the PCD Department of BIS. In past, several issues raised by the MoC have been resolved by PCD. In this meeting, most of the members were in favour of mandatory implementation and the MoC would take further action to notify the standards. Also, the 53rd Plenary of ISO/TC 204 and its working group meeting organised by ISO was held between April 8-12, 2019, in USA.

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