



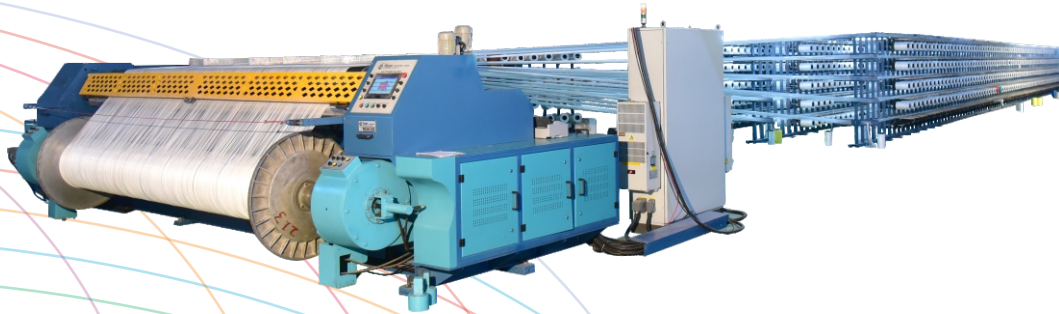
**ITTA & ITS MEMBERS ARE
TIRELESSLY WORKING TO
MEET DEMAND OF
PERSONAL PROTECTIVE
EQUIPMENTS IN THE
COUNTRY TO FIGHT
COVID-19**



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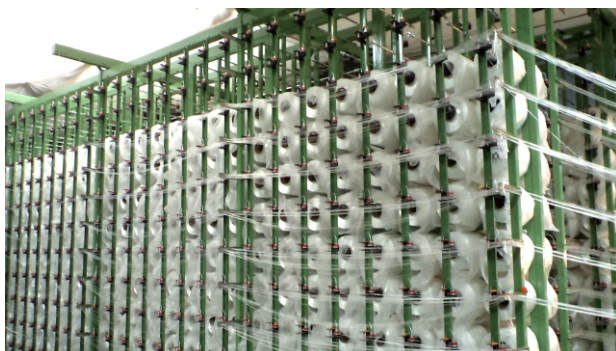
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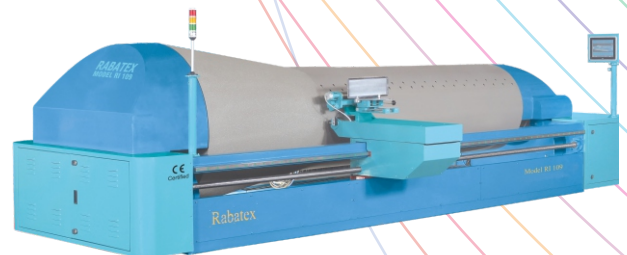
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ITTA DEFENCE HANDBOOK

INDIAN TECHNICAL TEXTILE PRODUCTS FOR DEFENCE

- A GLOBAL REACH -

Handbook covered major areas of Defence products with Indian Manufacturers' Names, Contact Details and Product Specifications i.e. ---

- *Protective Clothing & Accessories*
- *Collective Protection*
- *Load Carrying fabric*
- *Geosynthetics*



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Sustainable Apron for workwear collection



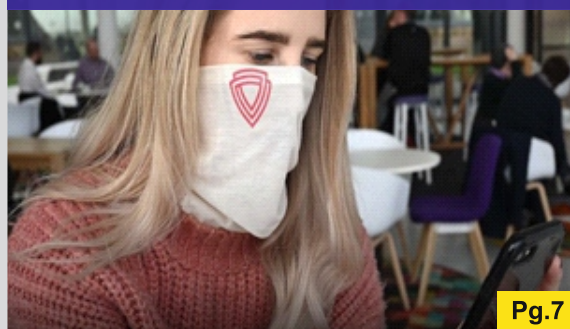
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SPECIAL REPORT

Meeting to assess the availability of protective wears for use of health professional in the country in the wake of COVID-19

The Meeting was held through audio-video conferencing under the Chairmanship of Shri. Ravi Cooper, Secretary, Ministry of Textiles on 18th March 2020 at Udyog Bhawan, New Delhi to assess the availability of protective wear for use of health professionals in the country in the wake of COVID-19. Dr. Sundararaman K S - Chairman, Dr. Anup Rakshit - ED and many ITTA members attended the meeting from various Regional offices of OTXC located all over India.

Decisions and further course of actions:-

- a. Procurement of body coveralls and N-95 masks for health professionals required for handling COVID-19 cases will be centralized with M/s HLL Lifecare Ltd. For all central and state government agencies until further decisions. The distribution of the items will be controlled by MoHFW depending upon the contingency requirement. Necessary instructions in this regard will be issued by MoHFW.
- b. Textile Commissioner Office and its regional offices will monitor production and supply position, especially for N-95 and 3-ply masks. Any artificial shortage, hoarding or profiteering will be dealt with as per the law.
- c. Manufacturers are requested to develop products from the resources available in the country and also through import, whenever possible. All intents for supply may be communicated to Shri Rajasekar, Director HLL Lifecare Ltd. (rajasekar@lifecarehll.com and on Whatsapp no. 9380312345).
- d. The samples for body coveralls and other items wherever applicable may be sent to SITRA on quick transit mode for conducting tests and certifications. SITRA will get the samples tested within shortest possible time and submit report to the manufacturers with copies to HLL Lifecare, MOHFW and MOT.
- e. Protective Wear Manufacturers Association (PWMA) will coordinate activities on behalf of its members with regard to supply chain, manufacturing and testing activities. All possible help for development of new products within the acceptable standards will be provided by Ministry of textiles and its organizations.
- f. The projected requirements as communicated by MoHFW are (i) Body suits (coveralls): 6.48 lakhs; (ii) N-95 masks: 60 lakhs; and (iii) 3 ply masks: 1 crore. The requirement is subjected to upward revision depending upon the situation of the COVID-19 in the country.
- g. Ministry of Textiles and Office of Textile Commissioner will examine the availability and supply of intermediate/ raw materials required for production of medical protective textiles, on day to day basis. Any measures in existing availability will be taken on urgent basis. O/o Textile Commissioner will monitor with the suppliers of melt blown fabrics in ensuring supply of 3 ply masks.
- h. The 3 ply masks manufacturers have assured the government that they will ensure availability for all government and public healthcare requirements at reasonable prices.

ITTA & Technical Textile Industry working towards the demand of PPE/Face Masks

With the outbreak of the Corona Virus (COVID-19), there is a sudden surge of demand of Personal Protection Equipment (full body coveralls), different types of Face Masks (3 layer, N-95 types) from the Hospitals.

Since this outbreak of COVID-19, ITTA is very actively working with Ministry of Textiles (MOT) & Office of the Textile Commissioner (OTXC) in one hand and the ITTA members on the other, to facilitate increase in production, inducting more manufacturers, testing of samples, development of Indian Standards, etc.

ITTA members were regularly updated with the various changes in Government policies to counter this emergency situation, such as-

- i) Ministry of Consumer Affairs Food and Publication Distribution had issued the Notification dtd 13th March 2020 wherein order was given to regulate the production, quality, distribution and logistics of masks (2ply & 3ply surgical Masks & N95 masks) as essential commodities.
- ii) ITTA submitted the list of manufacturers of PPE & Masks with current stock available, production capacity, specification, capability of increasing production in future, cost, etc. to MOT & MoHFW for COVID-19.
- iii) ITTA has encouraged many non-technical textile companies to manufacture PPE, coveralls, facemask, etc. and had them connected with the Fabric Manufacturers.
- iv) Laboratories for conducting testing and certification of PPE Body Coveralls for COVID-19 to Fabric & Coverall manufacturers:- The South India Textile Research Association (SITRA)- Coimbatore, Defence Research & Development Establishment (DRDE)- Gwalior, Small Arms Factory- Kanpur & Heavy Vehicles Factory- Tamil Nadu.
- v) M/s HLL Lifecare Limited (HLL) under Ministry of Health and Family Welfare (MoHFW) has been nominated as nodal agency for procurement of PPE comprising of Coveralls, 3ply masks, N95 masks, etc. required for healthcare professionals working in Central Govt. and State Govt. hospitals and have fixed Estimated Quantity with Existing Purchase Rates.
- vi) MOT had also issued the Notification dtd 24th March 2020 on Appointment of Nodal Officers to regulate the production, quality, distribution for supply of masks, melt blown fabrics and other textiles supplies including all types of medical protective textiles to the Central Government to combat COVID-19 which will sort out the problems of Industry.

INNOVATIONS AND TECHNOLOGY

PROTECH - Protective Masks & Sustainable Apron

Developed fabrics for Protective Masks

Maglificio Ripa, a textile company from Italy's Lombardy region (an area among the most affected by the novel coronavirus pandemic), has developed three special fabrics for the creation of innovative protective masks for civil use. "We immediately took action to help in the fight against this terrible pandemic," says Mr. Luca Bianco, director of Maglificio Ripa.

"With the design of three special fabrics that are safe and high performing, thanks to a special certified treatment, for the realization of protective masks. In cotton, polyester or polymer fabric, they ensure

total comfort, are antibacterial, water-repellent, breathable, washable, and Oeko-Tex certified," adds Mr. Luca.

"So far we have carried out the tests within our company and we are currently waiting for certification which is very important for us to ensure an excellent and safe product under every aspect for those customers of ours who have in the meantime converted their productions," Mr. Bianco concludes.

[Source-<https://www.knittingindustry.com/maglificio-ripa-in-the-front-line-against-corona-virus/>]

Sustainable Apron for workwear collection

Touchpoint, a Finnish pioneer in sustainable workwear, has joined hands with Spinnova, a sustainability fibre company based in Finland, launched Tapio, a sustainable apron for workwear collection. The apron, made of Spinnova's highly sustainable fibre, is the world's most ecological piece of workwear. Spinnova develops textile fibre directly out of FSC-certified wood and waste streams.

The objective of the collaboration is ultimately to make the world's most sustainable workwear collection. The Tapio prototype apron, named after the ancient Finnish god of the forest, is 100 per cent wood-based, made without harmful chemicals and quickly biodegradable. Its most interesting circular feature is the fact that the apron can be recycled into new fibre in the Spinnova process, without dismantling. The apron contains no materials that shed micro-plastics, and has no plastic or metal parts to weaken its recyclability. The Tapio apron is also undyed and uncoated, according to Spinnova. "Touchpoint wanted to join our journey long before we knew much about the technical or commercial development of our fibre, and wanted to publicly introduce a demo product before knowing when a collection is possible. This calls for a passionate

approach on sustainability from a textile brand," Spinnova's CEO Mr. Janne Poranen said.

"We are born curious and have grown to turn challenges

into possibilities. We need solutions that don't burden our environment and that can in the future replace, for example, cotton production. We started with an apron that helps us raise discussion and spread awareness of the possibilities this will offer to a more ecological workwear scene and the entire textile industry," Touchpoint's CEO, Mr. Outi Luukko said.

[Source-<https://spinnova.com/archives/news/spinnova-x-touchpoint-tapio-is-the-worlds-most-ecological-piece-of-workwear/>]



CLOTHTECH - E-Textile & Anti-virus Snoods

Self-Protective and Reproducible Electronic Textile

Researchers from the Ningbo Institute of Materials Technology and Engineering (NIMTE) under the Chinese Academy of Sciences (CAS) had developed a new self-protective and reproducible electronic



textile for wearable devices with high performance. It can protect itself from the interference of a variety of liquids and reproduce after mechanical wear and tear.

Wearable flexible electronics have been widely used in real-time human motion and health monitoring, human-computer interactions and deep learning, while their sensitivity, response speed and monitoring range need to be improved.

Textile-based electronic devices are still vulnerable to sweat, oil, wear and tear, and even severe washing cycles. Thus the realization of functional electronic textiles with high performance, environment stability and mechanical robustness still remains a challenge, according to a recent research paper in 'Journal of Materials Chemistry A'. The new electronic textile could be effectively utilised to monitor human motions, realise human-machine interactions and robot-learning even exposed to sweat or water environment, according to NIMTE professor Chen Tao.

The researchers put the electronic textile onto a robot finger and made the rigid and heavy robot hold fragile objects such as eggs without breaking them, with the aid of a rationally-designed robot-training system. The flexible sensors with the new electronic textile showed great potential in continuous, long-term and reliable human behaviour monitoring.

[Source-<https://www.technicaltextile.net/news/self-protective-reproducible-electronic-textile-from-prc-265878.html>]

Snood with germ trap technology fights COVID-19

Carrington Textiles and its main manufacturing facility in the UK, Pincroft, have teamed up with a UK biotech firm that developed a snood with technologies that prevent and protect against airborne virus transmission, including infections like influenza, MERS, SARS, the common cold and COVID-19.

Virustatic Shield is the result of 10 years extensive research and collaborative work with academics from The Manchester Institute of Biotechnology, to create an innovative anti-viral fabric coating applied to a light, easy to wear snood that guarantees a 360 degree and 96% protection against viruses in the air. The product acts as a barrier that attracts, traps and kills viruses in airborne droplets 15 times smaller



than a human hair, so it's safe to wear and touch as the virus will become inactive after touching the fabric.

According to textile manufacturer Pincroft, the soft handle of the fabric used to create these 'virus killing' snoods makes it a comfortable alternative to the

common face masks which can be hard to wear for prolonged periods of time. The company also highlighted that the nature of the fabric and the coating in it are safe to wear, reuse and touch after

being exposed to germs then also wash following the manufacturer instructions.

[Source - <https://www.virustaticshield.com/>]

MOBILTECH - Child Seat Headrest & Seat Upholstery

Thermoplastic Composites Make Child Seats Safer

Tepex continuous-fiber-reinforced thermoplastic composite materials from LANXESS are being used in a child seat headrest developed as a technology demonstrator offering excellent crash performance.

A multi-national research project was funded by the German Federal Ministry for Economic Affairs and Energy as part of the Central Innovation Programme for Small and Medium-Sized Enterprises (SMEs) (German acronym: ZIM). Participants in the project also included the Department of Lightweight Structures and Polymer Technology (SLK) at Chemnitz University of Technology, Polycomb GmbH and the Polish child seat manufacturer Avionaut.

The partners used LANXESS's Tepex dynalite 104-F G 2 9 0 (4) / 4 7 % thermoplastic composite materials strengthened with two layers of continuous-glass-fiber rovings produced in a particle-foam composite injection moulding (PCIM) process to develop a child seat headrest that is much lighter and offers excellent crash performance. A second tool using particle foam based on expanded polypropylene (EPP) is then used to finish the insert.

"The insert made of Tepex can reduce the weight of

the headrest by up to 30% in comparison with the commercially produced component variant and with comparably good crash performance, too. It also simplifies the production process," said Dr. Klaus Vonberg, an expert in lightweight construction at the Tepex Automotive Group of the High-Performance Materials business unit at LANXESS.

Mr. Norbert Schramm, a scientific assistant at the Chemnitz University of Technology and head of the ZIM project explained, "Not only is the new, highly integrated production process more energy-efficient than the previous procedure, it also results directly in the finished component. This reduces the total number of parts from six to one, which also lowers production costs in terms of logistics and the machine expenditure required."



LANXESS projects that because of the lightweight of Tepex and the new production process there is a great opportunity for use in seat shells for complex seating concepts in autonomous cars as well as in seating for electric vehicles, shuttles, and buses.

[Source - <http://compositesmanufacturingmagazine.com/2020/03/thermoplastic-composites-make-child-seats-safer/>]

Sustainable interior concept with seat upholstery made of PET

Audi has used seat upholstery made from recycled material in its fourth generation A3. Secondary raw materials are being used. Up to 89 per cent of the textile used is from recycled PET bottles, which are made into yarn. This results in fabrics that give the

same quality in terms of look and feel as conventional textile upholstery. PET bottles arrived at the recycling plant, they are sorted by colour, size and quality. Foreign matters such as the caps are separated. A mill then crushes the bottles into flakes,

which are washed, dried and melted down. Nozzles shape continuous plastic strands out of the mass. Once they have dried, a machine chops them into small pieces. This results in granulate, otherwise known as recyclate, and this undergoes extrusion to create threads. Wound onto coils, these are used in the final stage to manufacture materials.

Up to 45 PET bottles with a capacity of 1.5 litres are used per seating system. On top of this, an additional 62 PET bottles were recycled for the carpet in the new Audi A3. Other components in the interior are also increasingly made of secondary raw materials, for example, insulating materials and absorbers, the side panel trims of the luggage compartment, the loading floor and the mats. The goal is to increase the percentage of recycled material in the Audi fleet in the coming years.

At present, the seat upholstery is not yet made

completely of recyclable material. "The lower layer of woven material, which is connected to the upper material with adhesive, is what poses the challenge. We are working on replacing this with recyclable polyester," says Mr. Ute Grönheim, who is in charge of material development in the textiles division at Audi. "It is our goal to make the seat upholstery completely from unmixed material so that it can be recycled again. We are no longer very far away from this." In the long term, all seat upholstery across all model series will be made of recycled material. There are three different material designs for the Audi A3. They have an up to 89 per cent share of recycled material.

[Source-<https://www.audicork.ie/from-bottle-to-fabric-the-new-audi-a3-introduces-sustainable-interior-concept-with-seat-upholstery-made-of-pet/>]

COMPOSITES

Composite FRP Being Used to Strengthen Existing Bridges

FiberCore Europe developed SUREbridge, a circular solution in which a composite fiber-reinforced polymer (FRP) deck is placed on an existing concrete bridge. Crumbling, unsafe concrete bridges and viaducts handling heavier traffic is an on-going problem, and demolishing and rebuilding these structures is costly and very time-consuming and is not a sustainable solution. To solve the infrastructure issue while saving valuable time and money, FiberCore Europe, in collaboration with ten European countries, the United States and the European Commission, along with the University of Technology (Sweden), the University of Pisa (Italy) and AICE Consulting S.R.L. developed SUREbridge, a circular solution in which a composite fiber reinforced polymer (FRP) deck is placed on an existing concrete bridge. SUREbridge stands for Sustainable Refurbishment of Existing Bridges.

FiberCore Europe partnered with Strukton Civiel, a firm specializing in building, managing and maintaining infrastructural solutions, to carry out numerous tests on existing, outdated concrete bridges in the municipality of Noordoosolder in

the Netherlands. Testing shows that SUREbridge is a viable alternative to demolishing and rebuilding the structures. SUREbridge can also be used to widen bridges.

SUREbridge offers many benefits beyond cost savings to municipalities looking to repair damaged bridges and viaducts. Construction time is much shorter than demolition and rebuilding, limiting inconvenience for residents and businesses in the area using the road. SUREbridge also offers a longer lifespan than concrete alternatives with virtually no maintenance required, and the bridges will withstand the heavier traffic. CO2 emissions are reduced by preventing demolition and extending the lifespan of the bridge.

[Source-<http://compositesmanufacturingmagazine.com/2020/03/composite-frp-being-used-to-strengthen-existing-bridges/>]

TECHNOLOGY - HeiQ Viroblock & ViralOff Antiviral Technology

HeiQ Viroblock technology can combat coronavirus

HeiQ has recently launched HeiQ Viroblock NPJ03, an antiviral and antimicrobial textile treatment that has tested effective against coronavirus. According to HeiQ, the treatment in HeiQ Viroblock NPJ03 is proven effective against human coronavirus (229E) in face mask testing, enhancing the antiviral log reduction from 2.90 of untreated face masks to 4.48, more than a 99.99% reduction of virus infectivity. (Remark from HeiQ: A log reduction of 2 is equivalent to 100 times the effectiveness.)

The treatment is a combination of vesicle and silver technologies designed to inhibit the growth and persistence of bacteria and viruses. The company's vesicle technology targets lipid-enveloped viruses, such as coronavirus, providing virus deactivation, while the HeiQ silver technology inhibits the replication of both bacteria and viruses, the company reports.

Besides testing on human coronavirus (229E), it has

also demonstrated improved reduction of virus infectivity against Influenza types H1N1, H5N1, H7N9, and respiratory syncytial virus (RSV), according to the company. HeiQ Viroblock NPJ03 may be applied to a spectrum of textile surfaces including face masks, air filters, medical gowns, curtains, drapes and more, the company reported.

Chinese protective masks producer Suzhou Bolisi is the lead adopter of the technology. American legwear manufacturer Kayser-Roth is planning to add the technology to their new product, Ghluv hands protector. Lufeng from China is evaluating the technology on other types of fabric used for garments, the release says. The company expects treated masks to be available on the market as early as April 2020.

[Source- <https://hei.com/2020/03/16/hei-q-viroblock-antiviral-textile-technology-against-coronavirus/>]

Polygiene launches ViralOff antiviral technology

Today, amidst the wreckage of the COVID-19 pandemic, Sweden based Polygiene has launched a new product called ViralOff, a fabric finish with tested antiviral capability. According to Polygiene,

up to a standard," Polygiene says.

"Think of it as a sanitizer for garments," says Ulrika Björk, CEO Polygiene. "There is an enormous demand for things that help combat viruses now. With the ViralOff treatment, we can help set a standard for performance and help everyone get through these difficult times, from the heroes working in the medical services to the average person who would just like to get a pair of gloves or a facemask with tested antiviral capability. We also anticipate and welcome other novel product ideas from scientists and inventors that use this functionality."

"The application for the Viraloff antiviral technology will range from medical equipment and wear, like scrubs and uniforms to consumer products where antiviral properties make sense, like face masks, gloves and other crucial products. The new product will be available immediately in most markets," the company concludes.

[Source- <https://polygiene.com/viraloff/>]



on a garment treated with ViralOff, over 99% of viruses will be killed in 2 hours as per a ISO18184:2019 test. "All viruses so far tested, from Influenza A, BirdFlu, Norovirus and to Corona (SARS) viruses are reduced in the 99% range. As this testing procedure is central, the ViralOff brand will serve as a stamp of assurance that the product lives

MEDITECH - Reusable mask & Public access to ASTM stds

Reusable mask up to 50 times

Mitsufuji based in Japan, a company that develops and sells wearable products, has launched the 'hamon AG mask', a 'high-performance' mask that can be washed and used repeatedly. The product is made from medical fibers developed for wearables in response to a nationwide shortage of hygiene masks due to the spread of the new coronavirus infection.

It cuts pollen by 99% and uses the same material as used in medical garments to control germs. It also uses silver-plated fiber 'agposs', a proprietary technology that provides antibacterial and deodorant functions. As the need for hygiene masks has increased due to new coronavirus infections, we have developed hamon AG mask as a company that

addresses social issues so that everyone can feel safe and secure,' said the company.

It is designed to help alleviate the shortage of hygiene masks nationwide, the hamon AG can be washed and reused up to 50 times using any home washing machine. The entire garment is a three-dimensional silhouette, and the part that hangs on the ears is also made of the same fabric as the main body, so there is no elastic cord.

[Source- <https://www.designboom.com/design/mitsufuji-hamon-ag-mask-washable-03-20-2020/>]

ASTM International Provides Public Access to Standards Used For COVID-19

Global standards organization ASTM International is providing no-cost public access to a suite of two dozen important standards used in the production and testing of personal protective equipment to combat the COVID-19 (coronavirus) public health emergency. In an effort to support manufacturers, testing labs, healthcare professionals, and the general public, the available standards cover personal protective equipment including face masks, medical gowns, gloves, and hand sanitizers.

"ASTM International is committed to supporting healthcare providers, manufacturers, labs, and others in their efforts to address this global pandemic," according to Katharine Morgan, ASTM International president. "Providing access to these standards at no cost will help companies manufacturing these products to understand necessary safety, quality and performance requirements, helping our world work better."

The suite of available standards includes test methods, performance specifications, and terminology. They were developed and maintained by ASTM International's committees on personal protective clothing and equipment (F23), textiles (D13), rubber (D11), pesticides, antimicrobials, and alternative control agents (E35), and medical and surgical devices and materials (F04), and are available on the website - <https://www.astm.org/COVID-19/> for public access.

[Source- <https://www.astm.org/cms/drupal-7.51/newsroom/astm-international-provides-public-access-standards-used-covid-19>]

National News

Foreign Trade Policy 2015-2020 extended for one year

The Ministry of Commerce and Industry had announced changes in the Foreign Trade Policy (FTP) of Government of India on 31st March 2020. The present Policy which came into force on 1st April, 2015, is for 5 years and has validity up to 31st March, 2020. In view of the unprecedented current situation arising out of the pandemic Novel COVID-19, the Govt. has decided to continue relief under various export promotion schemes by granting extension of the existing Foreign Trade Policy by another one year i.e. up to 31st March, 2021. Several other relief measures have also been announced to support trade and industry. Salient points of the changes made in the FTP are as follows:

1. To provide continuity in the policy regime, the current FTP, valid till 31.03.2020 has been extended till 31.03.2021. Similar extension is made in the related procedures, by extending validity of Hand Book of Procedures.
2. Benefit under all the Export Promotion Schemes (except SEIS) and other schemes, available as on date, will continue to be available for another 12 months. Decision on continuation of SEIS will be taken and notified subsequently.
3. Similarly, validity period of the Status Holder Certificates is also extended. This will enable the Status Holders to continue to avail the specified facilities/benefits.
4. Exemption from payment of IGST and Compensation Cess on the imports made under Advance/EPCG Authorisations and by EOUs etc. has been extended up to 31.03.2021.
5. The scheme for providing "Transport Marketing Assistance on the specified Agricultural Products" is further extended for one year.
6. Validity period for making imports under various duty free import authorizations (AA/DFIA/EPCG) expiring between 01.02.2020 and 31.07.2020, has been allowed automatic extension for another six months from the date of expiry, without requirement of obtaining such endorsement on these authorizations.
7. Wherever the period to make export is expiring between 01.02.2020 and 31.07.2020 under various authorizations, automatic extension in the export obligation period is allowed for another six months from the date of expiry, without payment of any composition fee.
8. Last dates for applying for various duty credit Scrips (MEIS/SEIS/ROSCIL) and other Authorisations have been extended.
9. Time lines for imposing late cuts, on the applications which are filed after the prescribed dates, have been relaxed.
10. Validity period of Letter of Permission/ Letter of Intent as granted to EOUs, units in STPs/EHTPs/BTPs are further extended up to 31st December, 2020.
11. Last date of filing applications for refund of TED/Drawback, Transport and Marketing Assistance has been extended.
12. Extension in time has been allowed for filing various Reports/Returns etc. under various provisions of the FTP.

[Source - <https://pib.gov.in/PressReleaseDetail.aspx?PRID=1609704>]

India looks at importing PPEs to meet demand

Finding itself in a tight spot, India has started looking at importing Personal Protection Equipment (PPE) kits from China, Singapore and Korea in order to meet its requirements. While government's nodal agency on procurement HLL Lifecare rolled out a tender on 24th March 2020, the government has decided not to wait for the bids to open instead source it from other countries.

"We are looking at whatever source available," said a senior health ministry official. Adding that the ministry has placed orders on Tuesday from various sources in China, Korea and Singapore. "The Ministry of External Affairs (MEA) has been roped in for imports," added the official. He said that by April 10, India would import around 1 crore PPE kits which will also include N 95 masks. Ministry of Health in collaboration with the Ministry of Textiles, Department of Pharmaceuticals (DoP) and the states, are monitoring the requirement of PPEs, masks and ventilators, the health ministry said in a statement.

State-owned HLL Lifecare Ltd had floated a global tender dtd 24th March 2020 seeking PPE for healthcare personnel at the frontline of the battle against Covid-19. India is short of coveralls, masks, gloves and other items, as are other countries. India wants 1 million coveralls and goggles, 4 million N-95 masks, 2 million nitrile gloves, 600,000 face shield and 2 million triple-layer surgical masks among other items, according to the March 24 tender document, which ET has seen.

HLL Lifecare is the nodal agency for acquiring PPE for those tackling the coronavirus outbreak. Healthcare workers weren't too impressed at the speed with which it has been moving. The last date for receipt of bids is April 15, by which time the current lockdown is scheduled to end.

[Source - <https://economictimes.indiatimes.com/industry/healthcare/biotech/healthcare/covid-19-india-looks-at-importing-ppes-to-meet-demand/articleshow/74927892.cms>]

Govt. ropes in DPSUs to produce PPE, medical equipment

In order to give a boost to India's ability to produce PPE (personal protection equipment) kits and other essential medical equipment in the fight against Coronavirus pandemic, the Government has roped in various PSUs like BEL, DRDO, and BEML. While BEL has received an order for 30,000 ventilators, DRDO, in collaboration with local companies, is producing 20,000 N99 masks per day. All drug companies have assured the government that there will not be any shortage of drugs during this crisis and even auto manufacturers are working to develop and produce ventilators.

Coronavirus: Govt. places order for 30,000 ventilators with BEL

An order for 30,000 ventilators has been placed with BEL, which is going to collaborate with domestic manufacturers in this endeavour. Domestic

manufacturer Agva Healthcare in Noida has been able to develop suitable ventilators and order of 10,000 ventilators has been placed with it. Supplies are expected to commence by the second week of April. Indian Auto manufacturers are also preparing to manufacture ventilators. In the meantime, orders have been placed on international companies like Hamilton, Mindray, and Draeger to supply ventilators. Ministry of External Affairs is also approaching suppliers in China for sourcing 10,000 ventilators from them.

DRDO makes PPE in collaboration with local manufacturers

N95 masks are being manufactured by two domestic producers. They are able to supply 50,000 masks per day at the moment, but are ramping up capacities to make 1 lakh masks per day within the next week.

DRDO is also collaborating with local manufacturers to produce about 20,000 N99 masks per day. This supply is also expected to become available in a week's time. Hospitals in the country have 11.95 lakh N95 masks in stock as of now. Additional 5 lakh masks were distributed in the past two days and 1.40 lakh masks are being distributed today. 10 lakh masks would be part of the PPE kits being sourced from Singapore.

BEML set to deploy AI-based smart field ambulance in fight against Coronavirus

State-run BEML has also deployed its AI-based smart field ambulance to aid efforts being undertaken by the government to detect and treat Coronavirus infections. The ambulance features an AI-powered diagnostic system for troops in field. It is mounted on BEML TATRA 8×8/6×6 high mobility vehicle platform. Designated to cover medical diagnostic needs of troops in forward posts, including high altitude areas, it has fully integrated Digital Radiology, Cardiograph, Pathology Laboratory, Point of Care Devices, Digital Microscope, Digital Fundus Camera, Eye Analysis, Diabetic Retinopathy etc.

Background

Personal protection equipment (PPE) kits are used by medical personnel working in isolation areas and intensive care units to protect them from acquiring infections. They were not being manufactured in the country. With the prospect of a huge requirement of PPEs arising in the near future, the Government of India made proactive efforts to promote their

manufacturing in the country. Ministry of Textiles and the Ministry of Health and Family Welfare have been working together in this endeavour. Domestic manufacturers rose to the occasion and so far 12 manufacturers have cleared quality tests. Orders for over 21 lakh PPE coveralls have been placed on them. Currently, they are supplying 6-7,000 coveralls per day and this is expected to go up to 15,000 per day within the next week.

Current status

As of now, 3.34 lakh PPEs are available in various hospitals across the country that are on the frontline of the battle against Coronavirus. About 60,000 PPE kits have already been procured and supplied by the government. Indian Red Cross Society has arranged 10,000 PPE kits from China which have also been received and are being distributed. Another 3 lakh donated PPE coveralls are to arrive by April 4. An order for 3 lakh PPEs has been placed with ordinance factories to bolster the efforts taken by the government to contain Coronavirus pandemic. Ventilators are required for Covid-19 patients, as they tend to develop acute respiratory disease syndrome (ARDS). Less than 20 Coronavirus patients are on ventilator support at this moment. As against this, over 14,000 ventilators have been identified in various hospitals across the country for the treatment of Coronavirus patients.

[Source - <https://psuwatch.com/coronavirus-govt-ropes-in-dpsus-to-produce-ppe-medical-equipment/>]

Anti-microbial Coating prevent transmission of infection

Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), an autonomous institution under the Department of Science and Technology, has developed a one-step curable anti-microbial coating which, when coated on different surfaces such as textile, plastic and so on could kill a range of virus types including COVID 19.

This covalent coating, the research paper about which has been accepted in the journal Applied Material and Interfaces, has been found to

completely kill influenza virus as well as resistant pathogenic bacteria and fungi, including methicillin-resistant Staphylococcus aureus and fluconazole-resistant C. The recent outbreak of SARS-CoV-2 has created an unprecedented stir in the global public health. Corona virus, like influenza, is also an enveloped virus. Therefore it is anticipated that the coating may inactivate SARS-CoV-2 upon contact and can help prevent contamination if coated on various surfaces.

"Till date, to the best of our knowledge, there is no covalent coating strategy which can kill all viruses, bacteria and fungi," said the researchers. The coating can be fabricated on a variety of surfaces, and its ease and robustness eliminate the necessity of skilled personnel for procurement of the coating. The molecules developed have an ability to chemically cross-link with different surfaces upon UV irradiation. Upon the formation of the coating, it has been shown to permeabilize the membranes of pathogens (i.e. bacteria) leading to their inactivation.

Microbial attachment and their colony formation on different surfaces play a major role in the transmission of deadly infections in the community as well as healthcare settings. Keeping this in mind, an easy approach was developed to coat a wide range of substrates used in daily life as well as in clinical settings.

Molecules were designed, keeping in mind their optimum solubility in a wide range of solvents (such as water, ethanol, chloroform etc.) and a cost-

effective three to four-step synthetic strategy with easy purification and high yield. The molecules were then immobilized on different substrates such as cotton, polyurethane, polypropylene, polystyrene, etc., which construct majority of the objects we see around us. In brief, for coating on cotton, the sheets were dipped in a water solution of the compounds whereas, for other cases, ethanolic substrates were drop-casted on them followed by UV irradiation. After coating, the surfaces were evaluated for their antibacterial, antifungal, and antiviral activity.

Considering the current corona virus outbreak, if shown to be active, the molecule can be synthesized in large scale through a CRO (Contract Research Organization) and can be coated on various personal protective tools such as masks, gloves, gowns, etc. in collaboration with the private organizations. The molecules can also be coated on other medical devices and tools to avoid hospital-acquired or nosocomial infections.

[Source - <file:///D:/PIB1609970.pdf>]

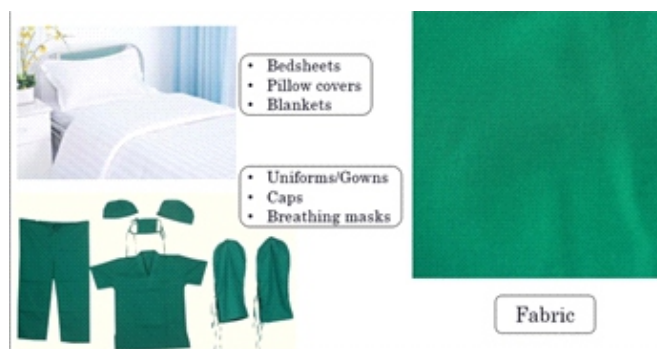
Infection-proof fabric to prevent hospital-acquired infections

The Indian Institute of Technology (IIT) here has developed an "infection-proof fabric" to be used at hospitals to prevent hospital-acquired infections (HAIs). The fabric developed is said to kill 99.9% of pathogens in a couple of hours.

After undergoing a series of textile chemical processing sequences, the fabric gains powerful anti-microbial functionality. Even after washing multiple times it does not lose its functionality. This non-toxic, affordable fabric can be stitched into various articles such as bedsheets, uniforms for patients, doctors and nurses, curtains and so on.

The development by "Fabiosys Innovations", a start-up incubated at IIT-Delhi, comes at a time when the world is dealing with the deadly coronavirus outbreak. However, the team has been working on the project for over a year with support from the government's Department of Science and Technology

According to official statistics from the Ministry of Health and Family Welfare, for every 100 hospitalised patients in developing countries, 10 acquire HAIs and the risk is even higher at the time of a coronavirus outbreak. The team claims to have



developed an affordable, novel textile-processing technology, which converts regular cotton fabric into infection-proof fabric. "We take rolls of cotton fabric and treat it with a set of proprietary-developed chemicals under a set of particular reaction conditions, using the machinery already commonly

available in textile industries. The fabric, after undergoing these processes, gains the powerful antimicrobial functionality," Mr. Samrat Mukhopadhyay, a professor at the Department of Textile and Fibre Engineering in IIT-Delhi, said.

"What is interesting about the Fabiosys' fabric is that even after washing multiple times, it does not lose its functionality. This fabric can be stitched into various articles such as bedsheets, the uniforms for patients, doctors and nurses and even curtains. The fabric satisfies the Indian washing standards in terms of number of washing. It is also completely

non-toxic and affordable," he added. IIT has collaborated with the All India Institute of Medical Sciences (AIIMS) for a pilot run of the product.

[Source-<https://timesofindia.indiatimes.com/home/education/news/delhi-iit-duo-develops-infection-proof-fabric/articleshow/74680119.cms>]

OR

<https://timesofindia.indiatimes.com/home/education/news/delhi-iit-duo-develops-infection-proof-fabric/articleshow/74680119.cms>

PSG Tech Centre of Excellence develops Coverall suits

The PSG Tech Centre of Excellence for Industrial Textiles here has developed coverall suits that can be used by members of the healthcare sector who are involved in treating COVID-19 affected people.

According to Mr. G. Thilagavathi, head of the department of textile technology department of PSG College of Technology, the fabric was tested at South India Textile Research Association (SITRA) and it had met the synthetic blood penetration test standards. The centre has non-woven fabric lamination machinery and the breathable membrane used in making infant beds was laminated at the centre for this project. The fabric was then tested at SITRA. It has been stitched into a coverall and the seams need to be tested too. The centre will test the seams and if these meet the

standards, the coveralls can be stitched.

"This fabric will not allow micro-organisms to penetrate. Some industries are also said to be getting into production of these coveralls here," she said. The Centre of Excellence has the capacity to make nearly 5,000 metres of fabric a day and the stitching can be outsourced, she said. The centre worked on the fabric before the lockdown came into force and got the test result recently. The centre is also into making of masks.

[Source-<https://www.thehindu.com/news/cities/Coimbatore/centre-of-excellence-develops-coverall-suits/article31222012.ece>]

DRDO develops bio suit with seam sealing glue to keep health professionals fighting COVID-19 safe

Defence Research and Development Organisation (DRDO) has developed a bio suit to keep the medical, paramedical and other personnel engaged in combating COVID-19 safe from the deadly virus. Scientists at various DRDO laboratories have applied their technical know-how and expertise in textile, coating and nanotechnology to develop the Personal Protective Equipment (PPE) having specific type of fabric with coating.

The suit has been prepared with the help of the industry and subjected to rigorous testing for textile parameters as well as protection against synthetic blood. The protection against synthetic blood exceeds the criteria defined for body suits by Ministry of Health and Family Welfare (MoHFW).

The DRDO is making all efforts to ensure that these suits are produced in large numbers and serve as a robust line of defence for the medics, paramedics



and other personnel in the front line combating COVID-19.

The industry is geared up for production of the suit in large quantities. M/s Kusumgarh Industries is

producing the raw material, coating material, with the complete suit being manufactured with the help of another vendor. The current production capacity is 7,000 suits per day. Another vendor is being brought in with the experience in garment technology and efforts are on to ramp up the capacity to 15,000 suits

per day. The bio suit production in the country by DRDO industry partners and other industries are being hampered due to non-availability of seam sealing tapes.

The DRDO has prepared a special sealant as an alternative to seam sealing tape based on the sealant used in submarine applications. Presently, bio suits prepared using this glue for seam sealing by an industry partner has cleared test at Southern India Textile Research Association (SITRA) Coimbatore. This can be a game changer for the textile industry. The DRDO can mass produce this glue through industry to support the seam sealing activity by suit manufacturers.

[Source-<https://pib.gov.in/newsite/PrintRelease.aspx?relid=200938>]

Karur textile industries 'gear' up to manufacture PPEs

With several concerns raised over the lack of safety gear for doctors treating COVID-19 patients across the State, Karur textile industries have been working full swing to manufacture personal protective equipment (PPE). With doctors working round the clock to treat COVID-19 patients, they have been hamstrung by the lack of PPE, especially with the lockdown making procurement difficult.

Karur is one of the largest textile manufacturing and export hubs in the country, has come to the rescue of the doctors by producing PPE - garments worn by healthcare workers to prevent infection, virus and transmission of other kinds of viral diseases. As of now, three textile units in Karur have started manufacturing PPE to be supplied across the State.

Mr. Nallamathu of Abinav Fabrics in Karur told, "We have been manufacturing medical clothing for hospitals, doctors, nurses and patients for the past 15 years. Currently, due to the COVID-19 outbreak, we have started manufacturing PPE for doctors and other healthcare workers treating coronavirus patients. Apart from us, two other firms are also manufacturing PPE in Karur now due to high demand. A total of 150 workers have been keeping

their nose to the grindstone for the past few days for a cause."

He added, "Right now, we are manufacturing about 1,000 PPE per day. The number would jump to around 3,000 per day as our workers and volunteers are willing to go the extra mile for the welfare of doctors. The PPE is made using non-woven materials, which are later given a waterproof coating. As the lockdown is in place, many of our raw material suppliers are unable to provide us the necessary items needed to manufacture PPE. The government must help us in getting us necessary materials, including zippers, Velcro, elastic and others to produce the protective gear."

PPE manufactured here includes a coverall, cap and a pair of safety socks. So far, PPE has been sent to the Tiruchy Commissioner's office, Namakkal GH, Salem MCH, hospitals in Karur and numerous other places across the State. The industries are aiming to manufacture around one lakh PPE in about a month.

[Source-<https://www.newindianexpress.com/states/tamil-nadu/2020/apr/02/covid-19-karur-textile-industries-gear-up-to-manufacture-ppes-2124719.html>]

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(Mob: 9598322222; Email Id: akindfabrics@gmail.com)

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GTN TEX PRODUCTS, TAMILNADU

(Mob: 9944478001; Email Id: gtnTex@rediffmail.com)

GTN Tex is the manufacturers of Industrial and Technical Fabrics. Since 2018 they are backed by European Technology with Skilled and Dedicated Manpower. The product range includes Industrial Canvas - 700 tons/year, Belting fabrics - 700 tons/year. Recently they have started manufacturing the PPE fabrics - 20 tons/year with production capacity.

ITTA PUBLICATIONS

Name of the Publication	Price*	Type of Publication
ITTA Defence Handbook - Indian Technical Textile Products for Defence - A Global Reach	₹ 750	Handbook
International Conference on “Technology & Machinery Innovations for Technical Textiles” held on 19th January, 2019	₹ 2000	Seminar Proceedings (CD-ROM)
3rd Defence-ITTA Joint Exhibition cum Seminar on Technical Textile held on 22nd & 23rd May 2017	₹ 2000	Seminar Proceedings (CD-ROM)
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