

TBRL develops face shields, safety enclosures for PGI docs

By Vijay Mohan

Chandigarh: From evaluating the technical parameters of missiles and explosives, the Terminal Ballistics Research Laboratory (TBRL) here has switched its expertise and in-house innovation to develop personal protective gear for the medical fraternity in the nationwide fight against Covid-19. As many as 10,000 full face protective shields and 15 acrylic enclosures for examining infected persons are being produced by the TBRL for the PGI here.

“The face shields are single-use as well as multiple-use type while the intubation protective enclosure can be used multiple times,” Dr Manjit Singh, Director, TBRL, said. “We are making about a 100 face shields and three-four enclosures each day,” he added.

An important Defence Research and Development Organisation (DRDO) establishment based in Chandigarh, the TBRL is involved in development, production, processing and characterisation of different high explosive compositions, fragmentation studies of warheads, captive flight testing of bombs, missiles and airborne systems and ballistics evaluation of protective system like body armour, vehicle armour and helmets.

The face shields are light weight and can be worn full day with comfort. Commonly available A-4 size transparency sheets used in overhead projectors are being used as visors while the holding frame is manufactured through Fused Deposition Modeling (FDM), commonly known as 3-D printing. Polylactic Acid filament, a biodegradable thermoplastic derived from renewable resources such as corn starch or sugarcane, was used for 3-D printing.

The enclosures were requested by the PGI’s Department of Anaesthesia and Intensive Care to act as first level of protection for doctors and medical staff during the intubation of Covid-19 patients. This is a process in which a tube is inserted into the patient’s mouth to keep the airway open so that the patient can be placed on a ventilator.

Made of perspex sheets, the transparent enclosure is a cuboid that covers the patient’s face and upper chest, with two holes on one side through which a doctor can insert his arms to work. Medical professionals are at elevated levels of risk of infection as virus particles can become aerosolised during intubation.

Mass production of the products is planned using the injection moulding technique to expedite the process. Industrial partners are also being developed to meet the possible demands from neighbouring states. Being a research laboratory, in-house production in the TBRL is limited.

Dr Manjit said the TBRL was also making hand sanitisers for the Chandigarh Police using base compositions developed by the DRDO. The requirement is for 6,000 bottles of 500 ml and 1,200 bottles had already been supplied. The TBRL was to get the sanitisers bottled from a commercial plant in Baddi in Himachal Pradesh, but the area has been sealed off due to the death of an infected person. Alternative measures are being explored.



In addition, the TBRL is also acting as a facilitator for the procurement of bio-suits developed by another DRDO lab for use by health care service providers. A walk-through disinfection tunnel, which is placed at the entrance to a building or complex, is also being evaluated at the TBRL. Developed by Research Center Imarat, Hyderabad, the tunnel is equipped with sensors to assess body parameters, air showers and disinfectant sprays. It has the potential of being deployed at any public place or office complex.

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15 Acrylic Enclosures

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<https://www.tribuneindia.com/news/chandigarh/tbri-develops-face-shields-safety-enclosures-for-pgi-docs-66247>



BHARAT SHAKTI
Self-Reliance in Defence

Mon, 06 April 2020

DRDO reinvents in war against Chinese virus

By Ravi Shankar

In the war against the Chinese virus, India's Defence Research and Development Organisation (DRDO) is reinventing it self and quickly developing some critical medical solutions to ensure not just the health of services personnel, but also of our citizen. From Personal Protection Equipment (PPE) to multi-patient ventilators, DRDO has taken on the task of rolling out mass supply of critical medical requirements amid the clamour of inadequate supplies from medics.

The DRDO took a call in the first week of March 2020 to enhance efforts to create counter-measures to stop the spread of the viral disease in India. It started focusing on creating mass supply solutions for critical medical requirements using years of experience and available technology to deal with the COVID-19 pandemic. As of result, the DRDO has quickly developed some frontline low-cost, high volume equipment desperately needed in the 'War against Corona'.



Technology from Submarines to Develop Body Suit (PPE)

In a major milestone, the DRDO has developed a Personal Protective Equipment (PPE), popularly known as a bodysuit, for frontline health workers and doctors. The suit is designed to prevent infection being transmitted to these personnel. The breakthrough was made at DRDo's Gwalior laboratory for defence against CBRN (Chemical, Biological, Radiological and Nuclear) agents.

Earlier, DRDO had developed this bodysuit for medical and paramedical staff to manage and evacuate the casualties in the event of radiological emergencies, which right now is converted as a full-body suit to stop contamination. The suit is washable and has passed the ASTM International

standards. The suit is widely tested by DRDO and other agencies and has been found adequate for the task. The scientists have used an adhesive which has its application in submarines to produce the bodysuit. The adhesive is a critical component in the suit as it seals off external air. Now, the industry is gearing up for the production of the suit in large numbers. At present, the production capacity of 7000 suits per day exists and efforts are on to ramp up the capacity to 15000 suits per day. Each suit costs Rs 7,000/-.



Multi-Patient Ventilators

Ventilators are in high demand to combat the pandemic and are in short supply. India currently has only 30,000-40,000 ventilators. To mitigate the overwhelming demand for critical care equipment, the DRDO is working overtime to develop 'Multi-patient ventilator' which can support 4-5 patients by a single ventilator. The ventilators are expected to be rolled out in a week.

The Society for Biomedical Technology (SBMT) programme of DRDO has been modified to cater to the current situation. It has been created by using existing technologies like breath regulators, pressure/flow sensors, etc. Around 5,000 ventilators will be produced in the first month and 10,000 subsequently. The DRDO has identified local alternatives to the supply of critical components. According to a statement issued by the government, Secretary, Pharmaceuticals has identified nine companies for design transfer. Each ventilator unit will cost around Rs four lakh. The market cost of a single ventilator is around Rs. 3-4 lakh which support only one patient.

Portable Fumigation Unit: Personnel Sanitisation Enclosure (PSE)

The DRDO's lab – Vehicle Research Development Establishment (VRDE), Ahmednagar has developed a portable full-body disinfection chamber called as Personal Sanitisation Enclosure (PSE) to be used in hospitals, offices, malls and other critical establishments.

According to DRDO, PSE is a walk through enclosure, equipped with sanitiser and soap dispenser. It is designed to disinfect one person at a time. The decontamination starts using a foot pedal at the entry. On entering the chamber, an electrically operated pump creates a disinfectant mist of hypo sodium chloride for disinfecting. The mist spray is calibrated to operate for 25 seconds and stops automatically thereafter, indicating completion of the operation. Approximately 650 personnel can pass through the chamber for disinfection until a refill is required. The system has a see-through glass panel as sidewalls for monitoring and is fitted with lights for illumination during night time operations.



Full Face Mask (FFM)

Similarly, the Research Centre Imarat (RCI), Hyderabad and Terminal Ballistics Research Laboratory (TBRL), Chandigarh, have developed a face protection mask for health care professionals handling COVID-19 patients. Its lightweight construction makes it convenient for comfortable wear for a long duration.

Portable Backpack Area Sanitisation Equipment

In the continuing quest for developing indigenous solutions to combat the Corona Virus Pandemic, Defence Research and Development Organisation (DRDO) has developed technologies



for sanitising areas of different sizes. The Centre for Fire Explosive & Environment Safety (CFEES), Delhi developed portable sanitisation equipment for spraying decontamination solution consisting of one per cent Hypochlorite (HYPO) solution for sanitisation of the suspected area.

These are spinoffs from technologies developed for fire suppression applications. The application areas can include hospital reception, doctors' chambers, office spaces dealing with the general public, corridors, pathways, metro and railway stations, bus stations, etc. The equipment is being provided to Delhi Police for immediate use. These can be made available to other agencies with the help of industry partners.

Hand Sanitizer

The DRDO has also developed in-house sanitizers for government establishments to ensure smooth working of offices without the fear of catching an infection. As per a statement issued by DRDO, it had produced the item sizable quantities and distributed to major offices and establishment within the capital by the 3rd week of March. Approximately, 4,000 litres of hand sanitizer has been provided to Indian Armed forces, Armed Forces Medical Corps, Defence Security Corps, 1,500 litres to Ministry of Defence, 300 litres to the Parliament, and 500 litres to various security establishments and high offices to address sanitization issues.

N99 Masks

The DRDO has also designed a five-layer N99 mask using nanotechnology mesh for a cost of Rs. 70/-. These masks are a piece of critical equipment in the defence against coronavirus. Presently, the production capacity is 10,000 N99 masks per day. Material for these is being sourced from Ahmedabad Textile Industry Research Association, which already has large government orders for N95 masks.

Explaining about the pro-active role, Chairman DRDO, Dr Satheesh Reddy said that the DRDO has reinvented itself by developing and sharing technologies free of cost with the industry for mass production of these critical medical equipment required in the country to combat coronavirus outbreak.

<https://bharatshakti.in/drdo-reinvents-in-war-against-chinese-virus/>

THE TIMES OF INDIA

Mon, 06 April 2020

DRDO, DFRL contribute their 'mite' to fight against pandemic

By R Uday Kumar

Mysuru: Among the many government agencies working tirelessly in the background to help the nation combat Covid-19 is the Defence Research Development Laboratory (DRDO), which in addition to manufacturing N-99 five-layered masks, has ordered a Mysuru-based private firm to manufacture 30,000 ventilators to help bridge the supply gap.

Ajay Kumar Singh, director of DRDO's life sciences wing, confirmed that the agency had been working on the manufacture of body suits for healthcare personnel, sanitation workers, et al. "The suit we have designed is washable, and measures up to international standards. The suit was tested, and we found that it is suitable for use by healthcare personnel," said Singh, confirming that DRDO had entrusted Skanray Technologies in Mysuru with the task of producing 30,000 ventilators.

The ventilators will be designed and manufactured in accordance with DRDO's technical blueprint, Singh told TOI. "We will assist Skanray in the procurement of some critical components," said the senior DRDO official, adding that the agency had been making hand sanitisers for its staff and employees of other government offices.

The N-99 masks are being manufactured at our centres in Kolkata and Mumbai, while work on personal protective equipment (PPE) kits is under way at Gwalior, Singh said. "Defence Food

Research Laboratory (DFRL) in Mysuru is performing an essential duty at this time by preparing food for healthcare personnel. Since a common or community kitchen cannot function at this time, the food prepared at DFRL is ensuring that doctors, nurses and support staff at hospitals are well-nourished. In fact, they have been working on ready-to-eat packaged food over the past few days and once ready, the consignment will be dispatched to other places,” he added.

Despite working with reduced human resources, DFRL is acquitting itself distinguishably in a time of national crisis. “Among the dishes being prepared are chapathi, pulao, tomato rice and beverages such as lemon juice. The demand for our products is very high but owing to the conditions of lockdown we are unable to work at full capacity. But DFRL staff is still ensuring the preparation of up to two tonnes of food, which can feed 2,000 people,” sources said.

<https://timesofindia.indiatimes.com/city/mysuru/drdo-dfrl-contribute-their-mite-to-fight-against-pandemic/articleshow/74997810.cms>



Mon, 06 April 2020

DRDO designs full-body disinfection chamber to fight virus

New Delhi: Focusing on in-house solutions to fight coronavirus pandemic, the Defence Research and Development Organisation (DRDO) has designed a full-body disinfection chamber called Personnel Sanitisation Enclosure. This walk-through enclosure is designed for personnel decontamination, one person at a time. The DRDO is already manufacturing and supplying sanitisers and masks to the Delhi Police while the Navy has manufactured handheld temperature gun at a cost of Rs 1,000 which is much less than the ones available in the market. The DRDO has also developed portable sanitisation spray which can be used to spraying disinfectant.

Giving details about the latest endeavour, defence ministry officials said here on Saturday the portable system is equipped with sanitiser and soap dispenser. The decontamination is started using a foot pedal at the entry. On entering the chamber, electrically operated pump creates a disinfectant mist of hyposodium chloride for disinfecting. The mist spray is calibrated for an operation of 25 seconds and stops automatically indicating completion of operation. As per procedure, personnel undergoing disinfection will need to keep their eyes closed while inside the chamber.

Moreover, the system consists of roof mounted and bottom tanks with a total of 700 litres' capacity.

Approximately 650 personnel can pass through the chamber for disinfection until the refill is required. The system has see-through glass panels on side walls for monitoring purpose and is fitted with lights for illumination during night time operations. A separate operator cabin is provided to monitor overall operations.

The system has been manufactured with the help of M/s Dass Hitachi Ltd, Ghaziabad, within a time span of four days. This system can be used for disinfection of personnel at the areas of controlled ingress and egress such as entry and exit to hospitals, malls, office buildings and critical installations.

Earlier, the DRDO also developed face protection mask for health care professionals handling COVID-19 patients. Its light weight construction makes it convenient for comfortable wear for long duration.

This design uses commonly available A4 size Over-Head Projection (OHP) film for face protection. The holding frame is manufactured using Fused Deposition Modeling (3D printing). Polylactic Acid filament is used for 3D printing of the frame. This thermoplastic is derived from renewable resources such as corn starch or sugarcane and is biodegradable.

The face mask will be mass produced using injection moulding technique for volume production. Nearly 100 face shields are being produced daily and provided to PGIMER, Chandigarh. Similarly, 100 are produced and handed over to ESIC, Hyderabad.

A demand of 10,000 masks been received from PGIMER and ESIC Hospitals, they said.

In the continuing quest for developing indigenous solutions to combat the pandemic, the DRDO is ready with technologies for sanitising areas of different sizes. The Centre for Fire Explosive & Environment Safety (CFEES), Delhi has developed two configurations of sanitising equipment. These are spinoffs from technologies developed for fire suppression applications.

The CFEES, Delhi with the help of its industry partner has developed portable sanitisation equipment for spraying decontamination solution consisting of one per cent Hypochlorite (HYPO) solution for sanitisation of suspected area.

The portable system can be mounted as a backpack and can be carried by the operations personnel.

This system incorporates low pressure twin fluid (air & disinfectant liquid) technology to generate very fine mist. The system is capable of disinfecting upto 300 square metre area.

The application areas can include hospital reception, doctor chambers, office spaces dealing with general public, corridors, pathways, metro and railway stations, bus stations, etc.

The Centre with the help of its industry partner has also developed a higher capacity which is carried on a trolley. The system incorporates low pressure single fluid (disinfectant liquid) technology generating very fine mist. It is capable of disinfecting upto 3,000 square metre area. It has a tank capacity of 50 litres and has a lancing (throw) distance of 12-15 metres.

This is useful for disinfecting hospitals, malls, airports, metro stations, isolation areas, quarantine centres and high risk residential areas.

Two of these systems are being provided to Delhi Police for immediate use. These can be made available to other agencies with the help of industry partners.

<https://www.dailypioneer.com/2020/india/drdo-designs-full-body-disinfection-chamber-to-fight-virus.html>



Mon, 06 April 2020

Coronavirus: DRDO creates full body disinfection chamber and full face mask

It comes with a roof mounted and bottom tanks and has a capacity of 700 litres and around 650 personnel can walk through before the next refill

By Huma Siddiqui

Using their scientific endeavours to develop products faster, the DRDO labs are now working with industry partners for bulk production.

With the help of M/s D H Ltd, Ghaziabad, in a short time of around four days, one of the labs of DRDO, Vehicle Research Development Establishment (VRDE), Ahmednagar, has designed full body disinfection chamber called as PSE.

This can be used at the military facilities as well as malls, hospitals, office buildings and other critical facilities.

What does this do?

According to DRDO it is a walk through enclosure which would allow one person at a time to walk through for being decontaminated and it has a portable system which is equipped with sanitiser and soap dispenser. Meant for the defence personnel, this will start using a foot pedal at the entry, and electrically operated pumps will create a disinfectant mist of hypo sodium chloride.

The mist spray is set to operate for 25 seconds and stops automatically on completion of the process. Through the spraying of the disinfectant, the personnel will be expected to keep his eyes closed.

It comes with a roof mounted and bottom tanks and has a capacity of 700 litres and around 650 personnel can walk through before the next refill.

The chamber has see through glass for monitoring and has lights fitted for night time checks. And according to DRDO there is a separate cabin for the operator to monitor the operations.

Full Face Mask (FFM)

Face protection mask for health care professionals handling COVID-19 patients has been designed and developed by Research Centre Imarat (RCI), Hyderabad and Terminal Ballistics Research Laboratory (TBRL), Chandigarh.

More about the FFM

It is light weight and is easy to wear for long hours.

The A4 size Over-Head Projection (OHP) film for face protection has been used which is commonly available.

The frame which holds the film has been made using Fused Deposition Modeling (3D printing).

Polylactic Acid filament is used for 3D printing of the frame. "This Polylactic Acid filament is thermoplastic and has been derived from renewable resources such as corn starch or sugarcane and is biodegradable.

According to the DRDO plans are being firming to mass produce these using injection moulding technique, As an update, daily TBRL is producing around one thousand face shields and supplying to Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh.

Also, around 100 have been produced at RCI and have been handed over to Employees' State Insurance Corporation (ESIC), Hyderabad.

Based on the successful trials, there is now a demand for 10,000 shields from PGIMER and ESIC Hospitals.

<https://www.financialexpress.com/defence/coronavirus-drdo-creates-full-body-disinfection-chamber-and-full-face-mask/1919498/>

YOURSTORY

Mon, 06 April 2020

Coronavirus: DRDO designs disinfection chamber, special face mask for healthcare professionals

The special chamber called 'PSE' is a walk through enclosure designed for personnel decontamination. It is a portable system equipped with sanitiser and soap dispenser, officials said

Joining efforts to fight COVID-19, the Defence Research and Development Organisation (DRDO) has designed a full-body disinfection chamber and a special face protection mask for healthcare professionals, officials said.

The special chamber called 'PSE' has been designed by Vehicle Research Development Establishment (VRDE), Ahmednagar, a DRDO Laboratory.

The walk through enclosure is designed for personnel decontamination, one person at a time. It is a portable system equipped with sanitiser and soap dispenser, officials said.

The decontamination is started using a foot pedal at the entry. On entering the chamber, electrically-operated pump creates a disinfectant mist of hypo sodium chloride for disinfecting, the DRDO said in a statement.

The mist spray is calibrated for an operation of 25 seconds and stops automatically indicating completion of operation. As per procedure, personnel undergoing disinfection will need to keep their eyes closed while inside the chamber, it said.

The system consists of roof mounted and bottom tanks with a total of 700 litres capacity. Approximately 650 personnel can pass through the chamber for disinfection until the refill is required, the DRDO said.

The system has see-through glass panels on side walls for monitoring purpose and is fitted with lights for illumination during night-time operations, it added.

This system can be used for disinfection of personnel at the areas of controlled ingress and egress such as entry and exit to hospitals, malls, office buildings and critical installations, officials said.

Also, Research Centre Imarat (RCI), Hyderabad, and Terminal Ballistics Research Laboratory (TBRL), Chandigarh, have developed face protection mask for healthcare professionals handling COVID-19 patients, the DRDO added.

Its lightweight construction makes it convenient for comfortable wear for long duration. This design uses commonly available A4 size Over-Head Projection (OHP) film for face protection, it said.

One thousand face shields are being produced daily in TBRL and provided to Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, it said.

Similarly, 100 are produced at RCI and these have been handed over to Employees' State Insurance Corporation (ESIC), Hyderabad. A demand of 10,000 shields has been received from PGIMER and ESIC hospitals based on successful user trials, the DRDO added.

https://yourstory.com/2020/04/drdo-disinfection-chamber-special-face-mask-coronavirus?utm_pageloadtype=scroll

Mon, 06 April 2020

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<https://www.dailyexcelsior.com/drdo-designs-disinfection-chamber-spl-face-mask/>



Mon, 06 April 2020

DRDO begins producing biohazard suit

Baleswar: In order to meet the exigencies, the Defence Research and Development Organisation (DRDO) has developed a biohazard suit to keep the medical, paramedical and other personnel engaged in combating the deadly coronavirus safe.

Scientists at various DRDO laboratories have applied their technical knowhow 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 the Ministry of Health and Family Welfare, said a DRDO release.

DRDO is making all efforts to ensure that these suits are produced in large numbers and serve as robust line of defence for the medics, paramedics and other personnel in the front line combating COVID-19.

The current production capacity is 7,000 suits per day. Soon, the number would be increased to 15,000.

<https://www.dailypioneer.com/2020/state-editions/drdo-begins-producing-biohazard-suit.html>

कोरोना पर लगाम लगाने के लिए DRDO ने बनाए

कई हथियार, संक्रमण से बचाने में आएंगे काम

कोरोना वायरस (coronavirus outbreak in india) महामारी covid 19 से लड़ाई के लिए देश की सभी सरकारी एजेंसियां हर संभव प्रयास कर रही हैं। रक्षा अनुसंधान और विकास संगठन (DRDO) ने कोरोना वायरस से लड़ रहे डॉक्टरों और अन्य मेडिकल स्टाफ के लिए खास फेस शील्ड्स और फुल बाडी डिसइंफेक्शन चेंबर डिजाइन किया है। डीआरडीओ एक बायो सूट भी तैयार कर रहा है जो डॉक्टरों और मेडिकल स्टाफ के लिए काफी काम का साबित होगा।

लोगों को संक्रमण से बचाने में काम आएगी ये मशीन

डीआरडीओ की अहमदनगर स्थित एक प्रयोगशाला प्रयोगशाला वाहन अनुसंधान विकास प्रतिष्ठान (वीआरडीई) ने पीएसई नाम का एक फुल बाडी डिसइंफेक्शन चेंबर डिजाइन तैयार की है। इस वॉक थ्रू इंकलोजर की डिजाइन एक समय पर एक व्यक्ति के लिए पर्सनल डिकान्टामिनेशन के लिए तैयार किया गया है। यह सैनिटाइजर और सोप डिस्पेंसर लगा हुआ एक पोर्टेबल सिस्टम है। इसे आपात स्थिति में कहीं भी लगाया जा सकता है। इसे एंट्री के समय एक फुट पैडल का उपयोग शुरू किया जा सकता है। चेंबर में दाखिल होने होने के बाद, इसमें लगे पंप डिसइंफेक्शन के लिए हाइपो सोडियम क्लोराइड का एक डिसइंफेक्टेंट मिस्ट तैयार करता है। इस मिस्ट स्प्रे को 25 सेकेंड तक चलाया जाता है। 25 सेकेंड के बाद अपने आप बंद कैमिकल निकलना बंद हो जाता है। प्रक्रिया के मुताबिक, चेंबर के भीतर रहने के दौरान डिसइंफेक्शन से गुजर रहे व्यक्ति को अपनी आंखें बंद रखनी होती हैं।

एक बार में 650 लोगों को संक्रमण से बचाया जा सकेगा

इस फुल बाडी डिसइंफेक्शन चेंबर से 650 व्यक्ति एक बार में इस डिसइंफेक्शन मशीन से गुजर कर डिसइंफेक्ट हो सकते हैं। 650 व्यक्तियों के गुजरने के बाद इस मशीन में लगे 700 लीटर क्षमता के रूफ माउंटेड और बाटम टैंकों में भरे कैमिकल को फिर से भरा जा सकता है। इस मशीन की निगरानी के लिए खास ग्लास पैनल लगाए हैं। इस मशीन का इस्तेमाल रात में भी हो सकता है। इसके लिए इसमें विशेष लाइटें लगाई गई हैं। इस मशीन को अस्पतालों, मालों, कार्यालय भवनों और महत्वपूर्ण प्रतिष्ठानों के प्रवेश और निकास गेट पर लगाया जा सकता है। इस मशीन के जरिए बिल्डिंग में आने वाले कर्मचारियों और अन्य लोगों को संक्रमण से बचाया जा सकता है।

डॉक्टरों के बेहद काम आएगी ये शील्ड

रिसर्च सेंटर इमारात (आरसीआई), हैदराबाद एवं टर्मिनल बैलिस्टिक्स रिसर्च लैबोरेटरी (टीबीआरएल), चंडीगढ़ ने कोविड-19 के संपर्क में आने वाले स्वास्थ्य पेशेवरों के लिए फेस प्रोटेक्शन मास्क का विकास किया है। इसका हल्का वजन इसे लम्बे समय तक इस्तेमाल करने पर भी आरामदायक और सुविधाजनक बनाता है। इसकी डिजाइन चेहरे की सुरक्षा के लिए खास तौर पर की गई है। इसमें ए4 साइज ओवर-हेड प्रोजेक्शन (ओएचपी) फिल्म का उपयोग किया गया है।

अस्पतालों ने मांगे 10 हजार फेस शील्ड

फेस शील्ड का होल्डिंग फ्रेम फ्यूज्ड डिपोजिशन मोडेलिंग (3डी प्रिंटिंग) तकनीक के जरिए बनाया गया है। फ्रेम की 3डी प्रिंटिंग के लिए पोलिलैक्टिक एसिड फिलामेंट का उपयोग किया जाता है। इस थर्मोप्लास्टिक को धान्य मांड या गन्ने जैसे बायोडिग्रेडेबल मटीरियल से बनाया गया है। इस फेस मास्क का बड़ी मात्रा में उत्पादन करने के लिए इंजेक्शन मोल्डिंग तकनीक का उपयोग किया जाएगा। अस्पतालों की ओर से अब तक इस तरह की 10 हजार से अधिक फेस शील्ड की मांग की गई है।

रेलवे ने बनाए रक्षक कोच

भारतीय रेलवे (Indian Railways) कोरोना वायरस (Coronavirus in India) महामारी covid 19 से लड़ाई में हर संभव योगदान करने का प्रयास कर रहा है। भारतीय रेलवे के पूर्वोत्तर जोन (North East Railways) ने कोरोना वायरस को हराने के लिए खास तरह के रक्षक कोच तैयार किए हैं। दरअसल पूर्वोत्तर रेलवे के गोरखपुर स्थित यांत्रिक कारखानों में इन रक्षक कोचों को तैयार किया जा रहा है। भारतीय रेलवे की ओर से दी गई जानकारी के मुताबिक रेलवे के सभी जोनों में 2 अप्रैल तक लगभग 25000 लीटर हैंड सैनिटाइजर और लगभग 2।6 लाख मास्क तैयार किए हैं। उत्तर रेलवे के अलग - अलग कारखानों में तीन अप्रैल तक 1673 लीटर हैंड सैनिटाइजर, 9036 फेस मास्क, 241 कवरऑल एप्रेन बनाए गए हैं। उत्तर रेलवे की ओर से 174 रेल डिब्बों को आइसोलेशन वार्डों में बदला गया गया है।

<https://www.zeebiz.com/hindi/india/photo-gallery-drdo-develops-sanitisation-enclosures-and-face-shields-to-save-healthcare-professionals-from-covid-19-24049/this-shield-will-be-useful-for-doctors-24052>



Mon, 06 April 2020

कोरोना से जंग की तैयारी/गुजरात में तैयार हुआ सस्ता स्वदेशी वेंटिलेटर, डीआरडीओ ने बनाया पर्सनल सैनिटाइजेशन चैंबर और फेस मास्क

- विदेश से आने वाले वेंटिलेटर की कीमत 6 लाख रु. होती है जबकि स्वदेशी वेंटिलेटर 1 लाख रु. में होगा तैयार
- पुणे की कंपनी ने कोरोना मरीज का सैंपल लेने के लिए बनाया स्वाब, अभी इसे इटली, अमेरिका और जर्मनी से मंगाया जाता है

नई दिल्ली: कोरोनावायरस के खिलाफ छिड़ी इस जंग में देश का हर शख्स अपना योगदान दे रहा है। सामाजिक संस्थानों से जुड़े लोग गरीबों की मदद कर रहे हैं। शैक्षणिक, शोध संस्थानों और निजी संस्थानों से जुड़े वैज्ञानिक इलाज को लेकर तमाम तकनीक तैयार कर रहे हैं। शनिवार को देश के वैज्ञानिकों ने तीन नए इन्वेंटिव प्रोडक्ट तैयार करने में कामयाबी हासिल की। एक तरफ जहां गुजरात के वैज्ञानिकों ने बेहद सस्ता वेंटिलेटर बनाया तो दूसरी ओर पुणे के वैज्ञानिकों ने कोरोना का सैंपल लेने वाला स्वाब डेवलप किया। डीआरडीओ के वैज्ञानिकों ने सर्जिकल सूट और फेस मास्क के बाद अब सेल्फ सैनिटाइजेशन चैंबर तैयार किया है। खास बात यह है कि तीनों प्रोडक्ट कोरोना के खिलाफ इस लड़ाई में देश की काफी मदद कर सकते हैं।



अब विदेश से स्वाब लाने की जरूरत नहीं पड़ेगी

पुणे की सेंटर फॉर मटेरियल्स फॉर इलेक्ट्रॉनिक्स टेक्नोलॉजी (सीमेट) के वैज्ञानिकों ने कम लागत वाला स्वदेशी पॉलिमर स्वाब तैयार करने में कामयाबी हासिल की है। केंद्र के डॉ. मिलिंद कुलकर्णी के मुताबिक, स्वाब का उपयोग कोरोनावायरस परीक्षण के लिए एकत्रित किए जाने वाले सैंपल को रखने में काम आता है। अभी इसे इटली, अमेरिका

और जर्मनी से मंगाया जाता है। डॉ. मिलिंद ने बताया कि चूंकि, पूरी दुनिया इस समय कोरोना संकट से जूझ रही है। खासतौर पर इटली, अमेरिका और जर्मनी में इस वक्त कोरोना के सबसे ज्यादा मामले हैं। वहीं, भारत में भी संक्रमण के मामले काफी बढ़ चुके हैं। इसलिए आने वाले दिनों में स्वाब की कमी हो सकती है। मुसीबत की इस घड़ी में यह स्वदेशी स्वाब देश के काफी काम आ सकता है। डॉ. मिलिंद के अनुसार, अभी स्वदेशी स्वाब का प्रोटोटाइप तैयार हुआ है। अब इसके क्लिनिकल ट्रायल की तैयारी की जा रही है। इसकी जिम्मेदारी यूरोलॉजिस्ट डॉ. केएन श्रीधर को दी गई है। डॉ. मिलिंद के अनुसार, आने वाले दिनों में लाखों स्वाब की जरूरत पड़ेगी। उनकी मशीन एक मिनट में 1 हजार से 2 हजार स्वाब तैयार करने में सक्षम है।



10 दिनों में गुजरात सरकार को मिल जाएगा 1 हजार वेंटिलेटर

गुजरात के राजकोट की ज्योति सीएनसी कंपनी ने स्वदेशी वेंटिलेटर तैयार करने में कामयाबी हासिल की है। इसे धामन-1 नाम दिया गया है। इसके सभी हिस्से स्वदेशी हैं। कंपनी का दावा है कि इसकी कीमत महज 1 लाख रुपये है जबकि विदेश से आने वाला 1 वेंटिलेटर कम से कम 6.50 लाख रुपये का मिलता है। मुख्यमंत्री विजय रुपाणी ने शनिवार को गांधीनगर में धामन -1 को लॉन्च किया। रुपाणी ने बताया कि अगले 10 दिनों में कंपनी गुजरात सरकार को 1000 एयर-1 वेंटिलेटर देगी। कंपनी के पराक्रम सिंह जडेजा ने बताया, "इसे डॉ. राजेंद्र सिंह परमार की टीम ने महज 10 दिनों में तैयार किया है। डॉ. परमार ने 5 साल तक अमेरिका में काम किया है। इस वेंटिलेटर को बनाने में 150 विशेषज्ञ इंजीनियरों की टीम जुटी थी। इसका परीक्षण अहमदाबाद के असरवा सिविल अस्पताल में भर्ती कोरोना मरीज पर किया गया। वेंटिलेटर पांच घंटे से अधिक समय तक रोगी पर अच्छा काम कर रहा है।



डीआरडीओ ने बनाया सैनिटाइजेशन चेंबर और फेस प्रोटेक्शन मास्क

कोरोनावायरस से निपटने के लिए तैयार डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गनाइजेशन (डीआरडीओ) ने एक फुल बॉडी डिसइन्फेक्शन चेंबर बनाया है। इसे सैनिटाइजेशन चेंबर भी कहा जा रहा है। साथ ही फेस प्रोटेक्शन मास्क भी बनाया है, जिसे हॉस्पिटल में सप्लाई भी किया जा रहा है। दिल्ली के अहमदनगर में डीआरडीओ की लेबोरेटरी 'व्हीकल रिसर्च एंड डेवलपमेंट इस्टैब्लिशमेंट' ने इस सैनिटाइजेशन चेंबर को डिजाइन किया है। डीआरडीओ ने कहा कि यह एक पोर्टेबल सिस्टम है। इस चेंबर में व्यक्ति को एक बार में पूरी तरह से सैनिटाइज किया जाएगा। इसमें एक पैडल के माध्यम से खुद को सैनिटाइज किया जाता है। चेंबर में पंप के माध्यम से हाइपो सोडियम क्लोराइड की तेज फुहार डाली जाती है। यह स्प्रे 25 सेकंड तक चलता है। इस चेंबर में व्यक्ति को अपनी आंखें बंद रखनी होती हैं। इस चेंबर में 700 लीटर का टैंक है। एक बार में करीब 650 लोगों को सैनिटाइज किया जा सकता है।



<https://www.bhaskar.com/national/news/drdo-built-a-personal-sanitization-chamber-and-face-mask-127107003.html>

Coronavirus: DRDO nod to coverall suits made by Railway workshop

Northern Railway, which made the breakthrough after another railway unit failed to get its samples passed, has raw material to make 3,000 coverall suits

By Vishek G Dastidar

New Delhi: The Defence Research and Development Organisation Sunday cleared coverall suit samples made by a railway workshop, paving the way for mass production of this protective gear, critical in India's fight against the coronavirus outbreak.

Northern Railway, which made the breakthrough after another railway unit failed to get its samples passed, has raw material to make 3,000 coverall suits. It has decided to source raw material from a Yamunanagar-based vendor approved by the Textiles ministry to manufacture an additional 3,000 units.

It is the Jagadhari coaching workshop of Northern Railway which made the suits using "reverse engineering".

The government estimates the country's medical fraternity and other workers will require some 1.5 crore coveralls by June. These suits are incinerated after each use and are the most critical component in the Personal Protective Equipment kit with significant shortage in India.

"Now we can contribute in mitigating the shortfall of coveralls in the country to the extent possible. We have already placed orders for raw materials for more," said Arun Arora, Principal Chief Mechanical Engineer of Northern Railway, which will share the design specifications with other zones so that production can happen on a larger scale if needed.

A Railway statement said that the national transporter will now aim to produce three sets of coverall suits per sewing machine per hour for 15 days.

Eighty-one coaches were earlier converted into isolation wards by this zonal unit, which has by now converted 340 coaches, readying 10 isolation trains and continuing to convert more.

Northern Railway is contemplating applying for a patent for the design of the isolation coach. "We will file for a patent... It is a unique Indian idea to show the world how in-use railway coaches can be turned into viable healthcare infrastructure in a time of crisis," Arora said.

The Rail Coach Factory, Kapurthala, has already made a prototype of a ventilator with its own design and in-house talent. The prototype will be sent to the ICMR for testing next week even as other two factories—the ICF, Chennai and Rail Wheel Plant, Bengaluru—also look to make ventilators with reverse engineering and outside collaboration.

<https://indianexpress.com/article/india/coronavirus-india-lockdown-drdo-nod-to-coverall-suits-made-by-rly-workshop-6348949/>



Northern Railways' PPE samples clear DRDO test; 100 units a day to be produced soon

The Northern Railways' Jagadhari Workshop which developed these sample will share the technical details including specifications of the approved samples and quantities of materials required with other zonal workshops and production units of the Railways

New Delhi: Two samples of Personal Protective Equipment (PPE) made at a Northern Railways workshop have been cleared by the DRDO for their ability to block blood or body fluid, paving the way for its production at railway units. The Northern Railways said on Sunday the test at the Defence Research and Development Organisation's Gwalior lab was conducted to check the resistance of the bio-protective covering material (fabric/garment) to penetration of blood or body fluid.

"Now these coveralls will be manufactured by Indian Railways and will be worn by doctors in railway hospitals while treating COVID-19 patients," the Northern Railways said.

Its General Manager Rajiv Chaudhary said, "This is a huge achievement for Northern Railways as well as for the Indian Railways. We will continue to supplement the efforts of the government in the fight against coronavirus."

There is an acute shortage of PPEs for medical professionals in the country who are treating coronavirus patients.

Technical specifications of these PPEs are now ready, and material suppliers are in place, the Northern Railways said.

"We are now making 20 per day, but in a week's time we will be able to make 100 per day," a Northern Railways spokesperson said.

The Railway Board has issued necessary instructions to Zonal Railways for production of the PPEs.

The Northern Railways' Jagadhari Workshop which developed these sample will share the technical details including specifications of the approved samples and quantities of materials required with other zonal workshops and production units of the Railways, it said.

The Indian Railway Stores Department has been designated to procure the material for the production of the PPEs.

This internal effort of the Railways is over and above a centralised request projected to the government and also indicated to HLL through Indent, the railways said.

According to the Health Ministry, the number of confirmed novel coronavirus cases in the country climbed to 3,374 on Sunday while the death toll rose to 77.

Of them, the number of active COVID-19 cases stood at 3,030 and as many as 266 people have been either cured of the disease and discharged, and one had migrated, it said.

<https://economictimes.indiatimes.com/industry/transportation/railways/northern-railways-ppe-samples-clear-drdo-test-100-units-a-day-to-be-produced-soon/articleshow/74996553.cms>

Mon, 06 April 2020

Personal Protective Equipments made by Northern Railways get DRDO nod

Two samples of Personal Protective Equipment (PPE) made at a Northern Railways workshop have been cleared by the DRDO for its ability to block blood or body fluid, paving the way for its production at railway units.

“The test was conducted to check the resistance of the bio-protective covering material (fabric/garment) to penetration of blood or body fluid. Now these coveralls will be manufactured by Indian Railways and will be worn by doctors in railway hospitals while treating COVID-19 patients,” the Northern Railways said on Sunday.

There is an acute shortage of PPEs for medical professionals in the country who are treating coronavirus patients.

We are now making 20 per day, but in a week’s time we will be able to make 100 per day,” Northern Railways spokesperson Deepak Kumar told PTI.

<https://www.deccanherald.com/national/north-and-central/personal-protective-equipments-made-by-northern-railways-get-drdo-nod-821755.html>



Mon, 06 April 2020

Railways' PPE kit passes DRDO test

New Delhi: The railways has passed the test conducted by DRDO for the Personal Protection Equipment manufactured by Jagadhari workshop to fight Covid-19.

A statement issues by Deepak Kumar, CPRO Northern Railways, said: "Northern Railway Jagadhari Workshop becomes the first workshop whose two PPEs/ Coverall sample passed the DRDO test. This will be helpful in fighting the war against Covid-19.

"The railways can now contribute to mitigating the shortfall in PPEs to the extent possible by manufacturing it in-house." said the statement.

There are reports of shortage of PPE and many videos have gone viral where doctors are facing lack of PPE.

The opposition Congress on Sunday hit out at the government on shortage of medical equipment, saying the country needs at least 62 lakh PPE kits.

The Delhi government has given the nod for procurement of Personal Protective Equipment (PPE) kits by city hospitals from local manufacturers and suppliers at market rate not exceeding Rs 1,087.47, amid an increasing demand.

Speaking to IANS, a Delhi Health Department official said on Sunday that the decision was taken as the city hospitals were facing severe shortage of the kits.

<http://www.daijiworld.com/news/newsDisplay.aspx?newsID=693054>

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<https://www.indiatoday.in/india/story/personal-protective-equipment-made-by-northern-railways-get-drdo-nod-1663640-2020-04-05>



AMCA: Final Design Freeze soon, DSI intakes, RCS reduction measures to make it first 5.5 Gen fighter

India's first and probably only 5.5 Generation Advanced Medium Combat Aircraft (AMCA) program currently underway, is now heading towards final design phase with many key notable changes in the design which is now nearing completion and now features new 3D Diverterless Supersonic Inlet (DSI) compared to a conventional intake sported in earlier scale and graphic rendering of the AMCA.

While exact radar cross-section (RCS) of AMCA will be classified, further RCS reduction measures have been carried out which full fills all the concept of stealth but its the next generation homegrown avionics and electronics including its gen-next weapons and ability to be used as a manned, unmanned, stealth and non-stealth modes which make it more lethal then current 5th generation fighter jets.

DRDO Chief and seniors have often refused to compare AMCA with other 5th generation fighter jets developed by other countries in the past, but idrw.org has been informed that AMCA Mk2 will be better than Chinese J-20 and J-31 Stealth fighter jets and comparable to the American F-35. Technological benchmark being set by both developers and operators is to develop a jet that is as capable as an F-35A in stealth and much more in avionics and other technology.

Once the design has been frozen, a full-scale model of the AMCA will be developed by VEM Technologies which will be used to measure RCS measurements at the outdoor Radar Cross Section (RCS) Test facility of DRDO at Chitradurga by the end of this year and the final design will be showcased for the first time by the end or in early 2021.

Diverterless Supersonic Inlet (DSI) is also being planned for upcoming MWF-MK2 and TEDBF/ORCA programs, while it skips Tejas Mk1 and Tejas Mk1A due to negligible benefits. DRDO also has developed new Radar observant paint for the AMCA program which will also be used on the MWF-MK2 and TEDBF/ORCA programs.

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<https://idrw.org/amca-final-design-freeze-soon-dsi-intakes-rcs-reduction-measures-to-make-it-first-5-5-gen-fighter/>



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When lock-down is lifted, we have to be highly disciplined: DRDO Chief VK Saraswat

India's society needs to be highly disciplined and follow guidelines strictly when the lock-down imposed to halt the spread of Coronavirus is lifted, NITI Aayog member and former DRDO Chief V K Saraswat said here on Sunday. He said when the curbs are removed in a regulated fashion, participation of the community is very important in terms of following the rules of the game such as social distancing and avoiding large gatherings, to prevent a fresh surge in COVID-19 cases. "Highly disciplined society is expected at that time", Saraswat, a former Scientific Advisor to the Defence Minister, told PTI. Right now, the focus should be on keeping the medical infrastructure in right shape and ensuring continuous supply of needed appliances and equipment for patients, doctors and paramedics, he said. "So there is a need for us keep the continuity of raw materials, supply chain for manufacturing and distributing these systems to all, Saraswat said.



We may need some extensive manufacturing capability to make up for gaps what we have. Raw materials for manufacturing should be made available. Given the number of COVID-19 cases, there is now no distinction between private and government hospitals as their attention is required on a war-footing, he said. India, Saraswat said, should fill up all the gaps it has in the healthcare system by making more investments, adding, right now the country has to come out with as many make-shift facilities as possible to make sure that the surging number of cases are taken care of.

<https://www.deccanherald.com/national/when-lock-down-is-lifted-we-have-to-be-highly-disciplined-drdo-chief-v-k-saraswat-821736.html>