

अमरउजाला

Fri, 17 April 2020

कोरोना से जंग: डीआरडीओ ने पीपीई जांच केंद्र को ग्वालियर से दिल्ली किया स्थानांतरित

नई दिल्ली: देश की प्रमुख रक्षा उपक्रम, रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने कोरोना महामारी के उपचार में जुटे डॉक्टरों तथा अन्य स्वास्थ्यकर्मियों के लिए जरूरी व्यक्तिगत सुरक्षा उपकरण(पीपीई) को समय पर और तेजी से उपलब्ध कराने के लिए अपने जांच केंद्र को ग्वालियर से दिल्ली स्थानांतरित कर दिया है।

डीआरडीओ ने आज कहा कि पीपीई किट की तेजी से उपलब्धता सुनिश्चित करने के लिए उसने ग्वालियर स्थित अपने जांच केंद्र (डीआरडीई) को दिल्ली स्थित इंस्टीट्यूट ऑफ न्यूक्लियर मेडिसिन एंड एलाइड साइंस (इनमास) में स्थानांतरित कर दिया है। इस केंद्र को पीपीई की जांच के लिए पूरी तरह तैयार कर दिया गया है और 10 बैच से भी अधिक वस्तुओं की इस प्रयोगशाला में जांच भी की जा चुकी है।



लैब(फाइल फोटो) - फोटो : ANI

इनमास बॉडी सूट और मास्क के परीक्षण और मूल्यांकन के लिए भी यह पूरी तरह उपयुक्त है। मंत्रालय के अनुसार इन वस्तुओं के 50 से अधिक बैचों को पहले ही इस प्रयोगशाला में परीक्षण किया जा चुका है।

बता दें कि डीआरडीई (ग्वालियर) जैविक और रासायनिक एजेंटों के खिलाफ पहचान और संरक्षण प्रौद्योगिकियों को विकसित करने में माहिर है। बयान में कहा गया है कि ग्वालियर प्रयोगशाला अब सिर्फ एचएलएल हेल्थकेयर लिमिटेड को विदेशों से प्राप्त मास्क का परीक्षण करेगी।

डीआरडीओ की परीक्षण प्रक्रियाओं से परिचित एक वरिष्ठ अधिकारी ने कहा कि पीपीई किट पर परीक्षण आयोजित करना एक चुनौती भरा काम है और इसमें त्रुटि के लिए कोई जगह नहीं हो सकती है क्योंकि यह स्वास्थ्यकर्मियों की सुरक्षा के बारे में है।

<https://www.amarujala.com/india-news/drdo-moves-testing-center-of-ppe-from-gwalior-to-delhi>

DRDO to test PPE at Delhi facility now

By Rahul Singh

New Delhi: The Defence Research and Development Organisation (DRDO) has shifted a key testing facility for carrying out quality checks on personal protective equipment (PPE) from Gwalior to New Delhi to cut down delays and ensure faster delivery of the safety gear to healthcare workers battling Covid-19, the defence ministry said in a statement on Thursday.

At a time when the country is facing a shortage of PPE kits, the testing facility has been shifted from Gwalior-based Defence Research Development Establishment (DRDE) to the Delhi-based Institute of Nuclear Medicine & Allied Sciences (INMAS).

“The facility at INMAS is fully operational for testing and evaluation of body suits and masks. More than 50 batches of these items have already been tested at the laboratory,” the ministry said.

The DRDE specialises in developing detection and protection technologies against biological and chemical agents. The statement said the Gwalior laboratory will now test only masks received by HLL Healthcare Limited from foreign countries before they are distributed to various agencies.



PPE kits are sent to DRDO for testing by HLL Lifecare, which is the government's nodal agency for medical procurement.(ANI file photo)

PPE kits are sent to DRDO for testing by HLL Lifecare, which is the government's nodal agency for medical procurement. The kits are distributed to various agencies only after they pass stringent quality tests. A PPE kit contains a full-body suit, masks, goggles, gloves, and shoe covers.

Conducting tests on PPE kits is a challenging task and there can be no room for error as it's about the safety of healthcare workers, said a senior official familiar with the DRDO's testing procedures.

“Our procedure is quite elaborate and includes synthetic blood penetration test and pressure testing at various levels to ensure that the suits can provide protection to the wearers. In testing, we look for the weakest link which is usually the seams. The safety of healthcare workers is crucial in the fight against coronavirus,” he said. Pressure testing of PPE suits is done at six different levels.

Another official said that the DRDO does not certify samples received from HLL Lifecare for testing as “passed” or “failed”. “We only list out the technical parameters of the PPE kits and send it back to HLL Lifecare Limited. After that, it is for them to decide,” he said.

The DRDO is among the several government agencies that have been at the forefront of the fight against the coronavirus disease. It has developed several products to combat the pandemic including ventilators, PPE kits, large area sanitization solutions and Covid-19 sample collection kiosks.

<https://www.hindustantimes.com/india-news/drdo-to-test-ppe-at-delhi-facility-now/story-dViPqLx4yNGgak8scyDBcK.html>

Indian companies dazzle the world with anti-Covid products

By M Ramesh

Chennai: China gives virus, India gives the cure' goes a nationalistic riff doing the rounds on social media – a reference to demand for made-in-India hydrochloroquine (HCQ) from several countries, including the US and Pakistan.

Well, the wisecrack might just as well be spoken a bit louder, because the global demand is not only for HCQ but a bouquet of other counter-Covid-19 products as well.

Soaring Demand: From face shields to masks to PPE products to isolation chambers, the world is knocking at the doors of Indian companies for supplies. Oddly enough, the companies that are making these products have got into this business only weeks, if not days, ago.

For example, a Belgaum-based company called Vega Aviation has been in the business of making products such as packing cases, wastebins, mobile toilets, security cabins and home food delivery boxes with fibre-reinforced polymers and composites.

With technology from the Defence Research and Development Organisation (DRDO), the company has just begun manufacturing kiosks for sample collection from Covid-19 suspects. These kiosks are small chambers, like telephone booths, where the patient is inside but the doctor (or the clinician) is outside. The doctor collects blood samples by putting his hands in through fixed rubber gloves. One such kiosk costs about ₹1 lakh. Vega has the capacity to manufacture ten a day. Its Director Suhas Chandak says the idea is to ramp up production to at least 25 a day.

As soon as the market learned Vega was going to make these products, Chandak started getting calls from representatives of companies based in the US and West Asia, placing orders for the product. An overwhelmed Chandak told *BusinessLine* that Vega was thinking of increasing capacity to 60 a day. "But my priority is India," he said.

Isolation Chambers: Pune-based Raksha Polycoats also got into anti-Covid-19 business very recently. The company has been making various products for Defence and ISRO, but has just begun making isolation chambers for Covid-19 patients. Raksha Polycoats has capacity to make 500 shelters a month.

The company's Managing Director, Abhijit Sarkar, told *BusinessLine* that he had received several enquiries from abroad.

A Hyderabad-based company called iMake, which is into rapid prototyping and 3D printing, also said it was getting enquiries from US companies for 'full face shields'.

Mayank Dwivedi, Director, Directorate of Industry Interface and Technology Management, DRDO, told *BusinessLine* that these products would have a large and sustained demand from abroad even after the Covid-19 episode ends.

Ventilators: Asked if ventilators could be exported too, Dwivedi said DRDO, working with its industry partners, had developed various components for ventilators. For the immediate needs of the country, 30,000 units will be manufactured by Bharat Electronics Ltd.

Transfer of technology for other companies will happen later, because unlike for other products such as face shields, sanitizers and isolation chambers, ventilators is an extremely hi-tech item. Transfer of this technology is a longer process and it would be done in course of time. If there is overseas demand for ventilators, Indian industry will have a play.

<https://www.thehindubusinessline.com/news/indian-companies-dazzle-the-world-with-anti-covid-products/article31362385.ece#>

Defence research body moves facility to Delhi for faster delivery of Covid kits

Officials said the move has been made to overcome delays and ensure swift delivery of personal protective equipment and face masks

New Delhi: The Defence Research and Development Organisation (DRDO) has shifted its testing facility from Gwalior to the national capital to ensure the swift delivery of personal protective equipment (PPE), officials said on Thursday.

The DRDO has shifted its testing facility from the Defence Research Development Establishment (DRDE) in Gwalior to the Institute of Nuclear Medicine & Allied Sciences (INMAS) in Delhi, they said.

The INMAS is a premier life science laboratory of the DRDO.

"The facility at INMAS is fully operational for testing and evaluation of body suits and masks. More than 10 batches of these items have already been tested at the laboratory," the DRDO said in a statement.

Officials said the move has been made to overcome delays and ensure swift delivery of personal protective equipment and face masks.

The DRDE, Gwalior which has been at the forefront of India's fight against the highly contagious coronavirus, has now been tasked to confirm the label claims of masks and body suits received by the government-owned HLL Lifecare Limited from foreign countries, before they are distributed to various agencies, the statement said.

<https://www.ndtv.com/india-news/defence-research-and-development-organisation-moves-facility-to-delhi-for-faster-delivery-of-covid-k-2213163>



DRDO is testing protection kits sent by HLL Lifecare (File)

ज्ञान प्रसार एवम् विस्तार

अमर उजाला वर्ष

कोरोना से जंग: डीआरडीओ ने पीपीई जांच केंद्र को ग्वालियर से दिल्ली किया स्थानांतरित

देश की प्रमुख रक्षा उपक्रम, रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने कोरोना महामारी के उपचार में जुटे डॉक्टरों तथा अन्य स्वास्थ्यकर्मियों के लिए जरूरी व्यक्तिगत सुरक्षा उपकरण(पीपीई) को समय पर और तेजी से उपलब्ध कराने के लिए अपने जांच केंद्र को ग्वालियर से दिल्ली स्थानांतरित कर दिया है।

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इनमास बॉडी सूट और मास्क के परीक्षण और मूल्यांकन के लिए भी यह पूरी तरह उपयुक्त है। मंत्रालय के अनुसार इन वस्तुओं के 50 से अधिक बैचों को पहले ही इस प्रयोगशाला में परीक्षण किया जा चुका है।

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डीआरडीओ की परीक्षण प्रक्रियाओं से परिचित एक वरिष्ठ अधिकारी ने कहा कि पीपीई किट पर परीक्षण आयोजित करना एक चुनौती भरा काम है और इसमें त्रुटि के लिए कोई जगह नहीं हो सकती है क्योंकि यह स्वास्थ्यकर्मी की सुरक्षा के बारे में है।

<https://www.amarujala.com/india-news/drdo-moves-testing-center-of-ppe-from-gwalior-to-delhi>

नवभारत टाइम्स

Fri, 17 April 2020

कोरोना: चीनी पीपीई किट टेस्ट में फेल, DRDO ने दिया जवाब

कोरोना वायरस की जांच (Coronavirus Test) के लिए चीन से मंगवाई गई पीपीई किट के टेस्ट में फेल होने पर डीआरडीओ (DRDO) ने जवाब दिया है। बता दें कि 5 अप्रैल तक भारत में चीन से करीब 1.70 लाख PPE किट की सप्लाई आई थी, जिसमें से 50,000 किट क्वालिटी टेस्ट में खरे नहीं उतरे थे। जानिए डीआरडीओ ने क्या कहा..

प्रियेश मिश्रा

हाइलाइट्स

- क्वालिटी टेस्ट में खरे नहीं उतरे चीनी पीपीई किट, डीआरडीओ की जांच में हुए फेल
- 5 अप्रैल तक भारत में चीन से करीब 1.70 लाख PPE किट की सप्लाई आई थी
- डीआरडीओ ने कहा- हमारी लैब केवल निर्धारित मानकों के अनुसार टेस्ट करती है

कोरोना वायरस की जांच के लिए चीन से मंगवाई गई पीपीई (व्यक्तिगत सुरक्षा उपकरण) किट के टेस्ट में फेल होने पर डीआरडीओ (डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गनाइजेशन) ने जवाब दिया है। डीआरडीओ के एक अधिकारी ने कहा कि हम हिंदुस्तान लेटेक्स लिमिटेड या किसी अन्य विक्रेता द्वारा टेस्ट के लिए प्रदान की गई किट को पास या फेल नहीं करते हैं। हमारी लैब केवल निर्धारित मानकों के अनुसार टेस्ट करती है और संबंधित एजेंसियों को उसका फीडबैक प्रदान करती है।

बता दें कि 5 अप्रैल तक भारत में चीन से करीब 1.70 लाख PPE किट की सप्लाई आई थी, जिसमें से 50,000 किट क्वालिटी टेस्ट में खरे नहीं उतरे थे। सूत्र ने बताया, '30,000 और 10,000 PPE किट के दो छोटे कंसाइनमेंट्स भी टेस्ट में पास नहीं हो पाए।' इन उपकरणों की जांच डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गनाइजेशन (DRDO) की ग्वालियर स्थित लैबोरेटरी में हुई थी।

पूरी दुनिया में चीन ने भेजे हैं घटिया PPE किट

जिस चीन से कोरोना वायरस दुनियाभर में फैला, अब वही मेडिकल सप्लाई के नाम पर दुनिया के साथ मजाक कर रहा है। यूरोपीय देशों समेत कई जगहों पर चीन ने इतने घटिया पीपीई किट भेजे हैं, जिन्हें पहना ही नहीं जा सकता। सोशल मीडिया पर ऐसे तमाम वीडियो वायरल हो रहे हैं जिसमें चीन के भेजे पीपीई किट पहनते ही फट जा रहे हैं।

मास्क के नाम पर भी चीन ने शर्मनाक हरकतें की हैं। बीते दिनों उसने अपने 'सदाबहार दोस्त' पाकिस्तान तक को अंडरवेअर से बने मास्क भेजे थे। अब भारत के साथ भी उसने ऐसा ही भद्दा मजाक किया है। हालांकि, किरकिरी के बाद चीन ने अपने यहां क्वालिटी चेक बढ़ाया है।

दक्षिण कोरिया सहित अन्य देशों से भी मंगाई जाएगी टेस्टिंग किट

चीन के टेस्टिंग किट में खामी मिलने के बाद भारत जल्द ही दक्षिण कोरिया से कोरोना टेस्टिंग किट खरीदेगा। इसके अलावा भारतीय मिशनो ने यूके, मलेशिया, फ्रांस, जर्मनी, जापान और अमेरिका के विक्रेताओं से टेस्टिंग किट के लिए कोटेशन भी लिए हैं। भारतीय मिशन पीपीई किट के लिए प्रमुख एजेंसियों के साथ कोऑर्डिनेट कर रहे हैं। संभावना है कि भारत को जल्द ही भारी मात्रा में पीपीई किट मिलेगी।

<https://navbharattimes.indiatimes.com/india/chinese-ppe-kits-fail-in-tests-drdo-labs-carry-out-tests-covid-19-in-india/articleshow/75181778.cms>

hindustantimes

Fri, 17 April 2020

Firms rush to meet new PPE norms

Recently, thousands of PPE items among the 170,000 donated by China — world's main supplier — failed the safety tests at the government-approved laboratories, two high-ranking officials confirmed to the Hindustan Times.

By Anonna Dutt

New Delhi: The Bureau of Indian Standards' newly-released list of national specifications for coveralls or body-suits worn by Covid-19 healthcare workers has left some government approved manufacturers scrambling for material that would pass the new tests, even as government-approved laboratories rejected thousands of personal protective equipment (PPE) kits that were donated by China.

Recently, thousands of PPE items among the 170,000 donated by China — world's main supplier — failed the safety tests at the government-approved laboratories, two high-ranking officials confirmed to the Hindustan Times.

"Yes, some of the samples of PPE kits from the imported lot did fail the safety tests," an official from the Defence Research and Development Organisation (DRDO) in Gwalior said. The kits, which arrived in India on April 5, were sent there for stipulated quality check.

"About a week ago, China realized after complaints that some of their PPE kits were faulty. So they listed 4-5 firms that were making quality kits. We are now ordering only from them. The number of dodgy kits were not too significant," an official of the empowered group on imports confirmed.

PPE kits include coveralls or full body suits, gloves, masks, head-cover respirators, goggles or face shields, and foot covers, among other elements. According to SITRA, India domestically produces 50,000 PPE kits (coveralls) daily, at present. However, till the beginning of this week, India faced a shortage of 15 million units, according to union textile ministry officials. It is unclear how the BIS guidelines will impact the shortage.

In an effort to standardise the quality of PPE kits, the BIS on April 14 released a specification document that said that the material used for coveralls must be fluid-resistant as well as virus-resistant. So far, the manufacturers have been making coveralls that are only fluid-resistant as per the guidelines laid down by the union health ministry in an 11-page document on March 24.



PPE kits include coveralls or full body suits, gloves, masks, head-cover respirators, goggles or face shields, and foot covers, among other elements.(Amal KS/HT PHOTO)

However, on Thursday, the list was taken down from the website of the BIS leading to speculation on whether the guidelines would undergo further revision.

“We were initially about to start our production with fluid-resistant materials, but we stopped even before we began because there were talks of viral-barrier suits. Now the challenge is availability of the raw material and the taping machines,” said Dr GSK Velu, chairman and managing director, Trivitron Group, one of the 81 manufacturers approved by SITRA.

“India does not have materials to make viral barrier suits. Instead, most companies are now laminating the coverall material and looking at sealing the seams to make the suits fluid and viral resistant. However, this is like wearing a raincoat in a non-AC ward, you can imagine the discomfort,” said Dr Ghanshyam Das Agarwal, chief managing director of G Surgiwear, a company that is looking to make products that are of certification level.

“The higher standard specifications released by the BIS are in a developing stage. Our feedback has already been sent through the official channels, so I cannot comment. But, it is likely that the specifications will be changed,” said Vijaya Shankara from Shree Hari Healthcare, an approved manufacturer.

According to Velu, while his company has been able to source material for viral-barrier body suits, and the manufacturing has begun, it will take at least a week for the kits to reach the market as the product will need to undergo certification.

Rajiv Nath, founder and forum coordinator of the Association of Indian Medical Device Industry (AiMeD) said that rather than import PPE kits, the government should import raw material, and other such critical material that’s missing in manufacturers’ supply chains.

“It is better to import critical missing raw material fabric for PPE that’s breathable and yet is fluid and viral resistant, rather than importing plane loads of PPE Kits,” Nath said.

“Breathability should be a bigger concern. Government should instead allow suits made of GSM 50 non-woven material, which will not pass the current test but are breathable and can provide 95 to 98% protection,” Agarwal added.

“It is good that there is a national standard now, we have been procuring the PPE kits locally and there are several that do not match the health ministry standards. If all the kits already come certified from the government then we will not have to worry about the quality,” a doctor treating Covid-19 patients in New Delhi’s Lok Nayak hospital, who did not wish to divulge his identity, said.

The issue of sub-standard PPE kits has been raised in multiple states. On Thursday, for instance, the director general of medical education (DGME) in Uttar Pradesh wrote a letter to medical colleges warning them against using substandard kits, after several complaints emerged from different Covid-19 hospitals. The kits were supplied by the Uttar Pradesh Medical Supply Corporation Limited.

“If you receive any sub-standard PPE kit or other medical items, do not use them. Return them straight away. Purchase good quality items from other sources and inform the DGME office about it,” Dr KK Gupta’s letter stated.

There are at least seven government designated private and public laboratories to check different items of PPE kits, including the DRDO and Coimbatore-based South India Textile Research Association (SITRA).

SITRA conducts checks for synthetic blood penetration (if blood will seep through the fabric), moisture vapour transmission (whether the fabric will allow moisture to pass between layers), weight test (grams per sq metre or GSM of the fabric), seam test and fabric strength.

A SITRA official told Hindustan Times that their laboratory also has the capacity to conduct dry and wet virus resistant tests on the fabric, but it was not carrying them out because there were no such directives from the government till now.

Other government approved testing laboratories include Trustin Analytical Solutions in Chennai that tests gloves, Chennai-based SGS India Private Limited that tests gloves, plastic-based

products, protective clothing and respirators, the Rubber Research Institute of India, which tests rubber-based materials, and the Heavy Vehicles factory, and the Small Arms factory.

(With inputs from Amrita Madhukalya and Gaurav Saigal)

<https://www.hindustantimes.com/india-news/firms-rush-to-meet-new-ppe-norms/story-reb7yr2XuepWeUXF4DJBNI.html>

The Indian **EXPRESS**

Fri, 17 April 2020

Ahmedabad's textile firm helping DRDO make 5 lakh N99 masks

ATIRA's nanotechnology department is developing and providing the filter cloth to DRDO in order to make masks that will be used by AIIMS, health ministry and defence organisations

Ahmedabad: The Ahmedabad Textile Industry's Research Association (ATIRA) is helping the Defence Research and Development Organisation (DRDO) prepare around 5 lakh N99 masks approved by the World Health Organisation (WHO).

ATIRA's nanotechnology department is developing and providing the filter cloth to DRDO in order to make masks that will be used by AIIMS, health ministry and defence organisations. So far, cloth for 3,85,000 masks has been supplied by ATIRA to DRDO.

ATIRA Deputy Director Deepali Plawat said that being a research organisation, converting ATIRA into a production unit was a challenge, which was successfully undertaken by the technical team of 15 members, including scientific officer, researcher and production unit experts, from the nanotechnology department.

Initially, cloth for 10,000 N99 masks was developed daily, which has now been increased to 15,000. Plawat added that due to lockdown there was difficulty in procuring the raw material but with the help of state government, GNFC and GSFC, the raw material was procured from within the state.

"Polyamide 6, a type of nylon is used in making the filter. For this, granules were required to be procured from Germany. With the help of the ministry of civil aviation and foreign ministry, 4 tonnes of granules were flown in by a passenger plane from a private firm in Germany that provided the granules free of cost," she said.

With a filtration capacity of 99.99% the N99 mask is prepared using coated fibre. It has total five layers where between three normal layers lies the filtered layers.

<https://indianexpress.com/article/coronavirus/ahmedabad-textile-company-drdo-n99-masks-coronavirus-covid-19-6365944/>



Initially, cloth for 10,000 N99 masks was developed daily, which has now been increased to 15,000. (File Photo)

ATIRA making medium for N99 masks

Ahmedabad: Ahmedabad Textile Industry's Research Association (ATIRA) has developed a special nano-coated medium that helps filter out any known virus prevalent in the world and can be used in making N-99 masks. While the novel coronavirus is of the size of 5 microns, the nano-coated medium can help filter particulate matter of up to 0.2 microns, according to ATIRA scientists. At present, the filtration medium is supplied to at least four manufacturers of masks and personal protective gear in Ahmedabad.

“Amid the lockdown, ATIRA is operating the machines in two shifts to produce the nano-coated medium, which is a material that can filter particles of up to 0.2 microns and therefore, it will be useful for frontline workers and other citizens, amid the ongoing fight against the Covid-19 pandemic. The machine has a capacity of producing some 400 metre of the material over an 8-hour shift on the nano-electro spinning machine,” said R M Sankar, assistant director, ATIRA.



“This material is being supplied to manufacturers of PPE and masks. Basically, the nano-coated medium is supposed to be kept between two layers of the mask and it will give adequate protection those who wear it,” he explained further.

In the past, masks made using similar medium has been supplied by ATIRA to Ahmedabad city police and to the Ahmedabad Municipal Corporation for traffic police as well as sanitation workers. This was primarily done to protect them from air pollution, particularly, PM2.5 particles.

The filtration medium has been tested at the Centre of Excellence of Medical Textiles at South India Textile Research Association (SITRA) in Coimbatore and also at Nelson Laboratory, USA.

The medium has been developed jointly by ATIRA and DRDO. ATIRA has so far provided material enough to produce 3.85 lakh N99 masks to the DRDO so far.

The production capacity has now been increased from material for 10,000 masks to 15,000 masks on a daily basis, at ATIRA.

<https://timesofindia.indiatimes.com/city/ahmedabad/atira-making-medium-for-n99-masks/articleshow/75190415.cms>

Indian Railways steps Covid-19 fight with 30,000 coveralls for health workers in April; 1 lakh in May

According to the Railway Ministry, the national transporter will manufacture over 30,000 such coveralls in April 2020

By Devanjana Nag

Indian Railways units make coveralls to fight Coronavirus! The production units, workshops and field units of Indian Railways have started producing Personal Protective Equipment (PPE) coveralls to fight against COVID-19 pandemic. These coveralls will be used for medical and health-care personnel who get directly exposed to the novel Coronavirus infection when working amongst infected patients. According to the Railway Ministry, the national transporter will

manufacture over 30,000 such coveralls in April 2020. Besides, Indian Railways plans to produce as many as 1,00,000 coveralls in May 2020 in a mission mode. The ministry also informed that the prescribed tests have already been cleared by the prototype coveralls with the highest grades at the authorized DRDO laboratory at Gwalior.

As the medical staff of Indian Railways, as well as other health workers and care-givers, are working tirelessly fighting the novel Coronavirus, they are directly exposed to the COVID-19 infection when working amongst



infected patients. Therefore, they need to be provided with a special type of impervious coverall that can guard against the virus and other disease-carrying fluids. Since such coveralls can be used only once they are needed in large numbers.

Indian Railways plans to produce as many as 1,00,000 coveralls in May 2020 in a mission mode.

To fulfill the requirement of PPEs, the Northern Railways' Jagadhari Workshop had taken the initiative to design as well as produce a prototype PPE coverall. In the current month of April 2020, the national transporter has been able to procure as well as distribute sufficient raw material to its workshops and other units for producing over 30,000 PPE coveralls.

According to the ministry, the production of coveralls has been started and for another 1,00,000 coveralls in the month of May 2020, sourcing of appropriate raw material has been started as well. The Railway Ministry further claimed that all this has been done by the Production Units and Workshops of Indian Railways despite there being a shortage of raw materials and machinery for producing PPE coveralls.

<https://www.financialexpress.com/infrastructure/railways/indian-railways-steps-covid-19-fight-with-30000-coveralls-for-health-workers-in-april-1-lakh-in-may/1930169/>

Outlook
THE FULLY LOADED MAGAZINE

ज्ञान प्रसार एवम् विस्तार
Fri, 17 April 2020

Covid-19: NFR plans to produce 2,000 PPEs in April

Guwahati: The Northeast Frontier Railway (NFR) has planned to make 2,000 sets of personal protective equipment this month to meet the growing demand for such coveralls for healthcare personnel who get directly exposed to the COVID-19 disease when working amongst infected patients, an official said on Thursday.

The NFR has already made about 150 sets of PPEs in its workshops as per the specification provided, he said.

Prototypes of PPEs have been made at the New Bongaigaon and Dibrugarh workshops of the NFR with the help of presently available infrastructure, CPRO Subhanan Chanda said.

These prototypes have been tested by medical professionals of the railway, he said.

"Nearly 150 sets of PPEs have already been made in the last 2-3 days, and NFR plans to make 2,000 such sets, out of 30,000 targeted by Indian Railways," the CPRO said.

The prototype coveralls have been approved with the highest grade at the authorised DRDO laboratory at Gwalior, he added.

The Railways' production facilities, workshops and field units across the country have also begun manufacturing of the PPEs to meet the target of 30,000 such coveralls in April, and it plans to make 1 lakh more in May.

Chanda said the Railways' doctors, nurses and health workers are working amongst infected patients and they are vulnerable to the infection.

He said they need to be provided with a special kind of impervious coveralls and these are required in very large numbers as each can be used only once, he said.

Meanwhile, Indian Railways has converted more than 5,000 of its passenger coaches into quarantine and isolation facilities within a very short period, he added.

(Disclaimer: This story has not been edited by Outlook staff and is auto-generated from news agency feeds. Source: PTI)

<https://www.outlookindia.com/newscroll/covid19-nfr-plans-to-produce-2000-ppes-in-april/1804437>

THE TIMES OF INDIA

Fri, 17 April 2020

Northeast Frontier Railway plans to make 2,000 PPE sets in April

By Prabin Kalita

Guwahati: The Northeast Frontier Railway (NFR) has started making Personal Protective Equipment (PPE) for use by doctors and nurses attending to Covid-19 patients.

NF Railway chief PRO Subhanan Chanda said the NFR plans to make 2,000 sets of personal protective equipment this month.

"The NFR has made nearly 150 sets of PPEs in the last two to three days and we plan to make 2,000 such sets out of 30,000 targeted by the Indian Railways to meet the growing demand for such coveralls for healthcare personnel who get directly exposed to the Covid-19 when working amongst infected patients," he said.

"The prototypes of PPEs have been made at the New Bongaigaon and Dibrugarh workshops of the NFR with the help of presently available infrastructure and these prototypes have been tested by medical professionals of the railways. The prototype coveralls have been approved with the highest grade at the authorised DRDO laboratory at Gwalior," he added.

The Indian Railways' production facilities, workshops and field units across the country have also begun manufacturing PPEs to meet the target of 30,000 such coveralls in April. It plans to make 1 lakh more in May.

Chanda said doctors, nurses and health workers of the Railways are working among infected patients and they are vulnerable to the infection.

<https://timesofindia.indiatimes.com/city/guwahati/northeast-frontier-railway-plans-to-make-2000-ppe-sets-in-april/articleshow/75191220.cms>



Figure 1 As coronavirus spreads across India, its time to mask up and stay safe (Image courtesy: maskindia.com)

Start-up set for mass production of N95 masks

Product clears all mandatory tests

By M.P. Praveen

A Kochi-based company, working with the Kerala Startup Mission (KSUM) and Maker Village, is determined to turn the shortage of N95 masks, the most common particulate-filtering facepiece respirator across the world, felt during the fight against COVID-19 being the last such episode.

“The product has cleared all eight tests, including those prescribed by the National Institute for Occupational Safety and Health (NIOSH). Of them, five were conducted at the South India Textile Research Association and three at a major mask manufacturing company. The approval of the Union government alone is pending for which the product has been sent to the DRDO lab at Gwalior for clearance from the Indian Council of Medical Research,” said Saji Gopinath, Chief Executive Officer, KSUM. In fact, production can be started once government approval is obtained in which case it will be the third such company in the country to produce N95 masks. The startup has the capacity to churn out 5,000 to 10,000 masks a day and has already stockpiled raw materials for manufacturing over 2 lakh masks, Mr. Gopinath added.

Quality Parameters

In all the eight tests, the product exceeded the quality parameters of N95 and nearly matched the standards of N99 masks.

According to N95 specifications, bacterial filtration needs to be at least 95%, whereas it was 99.70% for the product. Particulate matter filtrate was 99.91% as against the standard of 95%.

<https://www.thehindu.com/news/cities/Kochi/start-up-set-for-mass-production-of-n95-masks/article31360656.ece>

DRDO Technology



DEFENCE AVIATION POST
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Fri, 17 April 2020

HAL AMCA: Is India now able to develop it's fifth generation fighter jet?

India, a country who recently developed its own first indigenous fighter (LCA TEJAS) which is single engine, single seat and multi role fighter jet. But till India is not able to build its own engine which is the main power house for any Fighter jet but India is developing it at a very fast rate.

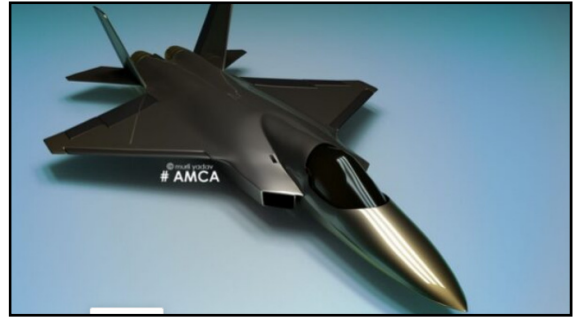
Does it sound realistic that a country who made it's first jet recently after a long struggle, now he is thinking that he can make a fifth generation fighter which is capable to cope with fighter jets of countries like USA (only country who have its own fifth generation fighter jet in operational state).

Yes, India has many plans to do for its military from its plan one is to develop a fifth generation fighter jet for its Air-force. Govt. Promoting Indian defense player to come up and make good quality products so that countries need for defense would be fulfilled at domestic level as well as

govt. Aims to become a export player in defense manufacturing that's they backing defense manufacturer in India.

Lets come to point on Hal AMCA

In 2008, IAF asked ADA to prepare a detailed report on fighter which is of 20 ton and have some stealth feature. Air-force chief asked this because of India's Air-force fleet aging and to remain and balance the power in the region India need a strong Air-force.



But in 2010 requirements were changed by Air-force now they want 25 ton stealth fighter jet and they also asked ADA is AMCA's first prototype flight can take off by 2025?

After the completion of study ADA found that they need at-least 9000 crore for this project in which different technologies are developed and at-least seven prototype be prepared, they submitted this to Govt.

In 2012 final design is approved by Air-force, after that HAL and ADA are working on this project with their full speed. ADA said that they will make first prototype by 2022, hope this statement by ADA will become true.

AMCA is designed by ADA and manufactured by HAL. AMCA will be a single seat, Twin engine, stealth multi-role fighter jet. First stage of AMCA is done and stage two works is started. It's first flight is scheduled in 2025. Not only Air-force but Navy also interested in this project, because navy also want a Naval version of this Fighter. Navy also invested in this project.

It is supposed that it will consist of all modern weapons and modern avionics, some of them are under development and remaining taken from tejas, Rafale, Su-30mki and other modern fighter jets. Speed of AMCA will be 2,655 km/h and this fighter jet will be powered by Kaveri engine which is under development stage. AMCA also consists of modern sensors, Radars, Missiles which will be a mix of Israel, India, Russia, France and some other technologies from India's friendly countries too.

The broad requirements outlined for the AMCA are to incorporate a high degree of stealth, a high internal and external weapons payload, high internal fuel capacity, and the ability to swing from an air-to-air role to air-to-ground. It is also expected to have the ability to super cruise. This allows the aircraft to travel at supersonic speeds with greater endurance as the afterburners do not have to be used with the additional fuel usage.

Even though future air combat has been envisaged as being beyond visual range excluding the likelihood of aerial dogfights as before, the AMCA is expected to sport a thrust vectoring engine. The ADA is designed the AMCA as a platform with high survivability, to meet the challenges of future air defense environments through a combination of moderate stealth, electronic warfare capability, sensors and kinetic performance. The design philosophy seeks to balance aerodynamics and stealth capabilities.

The aircraft will have a weight of 16-18 tons. 16-18 tons with 2-tons of internal weapons and 4-tons of internal fuel. Combat ceiling will be 15-km, max speed of 1.8-Mach at 11-km. The AMCA will be powered by 2 x 90KN engines with vectored nozzles.

AMCA also comes with self protection jammer system to jam enemy radar guided missiles from both air and ground. Electronic counter measure systems to confuse the infrared guided missiles and a radar warning receiver too added to detect enemy radar frequency's.

<https://www.defenceaviationpost.com/2020/04/hal-amca-is-india-now-able-to-develop-its-fifth-generation-fighter-jet/>



Fri, 17 April 2020

MWF Tejas: Why Tejas Mk2 (MWF) will be important

With the Indian Air Force's (IAF's) MMRCA program getting serially delayed and recast more than once, there was a feeling in various quarters that the Tejas Mk2 design should perhaps evolve further than what was initially envisaged to provide an indigenous option for the IAF's requirements. Thus, the IAF and the Aeronautical Development Agency (ADA) sat down to redefine the Tejas Mk2 with more elaborate modifications such that it could function as a medium weight fighter for ground attack roles while continuing to be nimble in the air to air (A2A) role. In fact, the version of the Tejas Mk2 currently envisaged has been rebadged as the Medium Weight Fighter or (MWF) and is being designed as a replacement for the Mirage 2000 with a view to surpassing its capabilities in almost every respect

Tejas Mk2 also known as Medium Weight Fighter (MWF) looks very much similar to Tejas Mk1. However the main differences are prolonged fuselage. The overall length of Tejas Mk2 is 14.7 meter from increased from 13.2 meter in Tejas Mk1. While studying the aerodynamics and its constrains in Tejas Mk1, it was observed that it was unable to comply to Area ruling because of short length. So it was decided to take care of this concern of Tejas Mk1 by increasing



the length. Other aerodynamic issues such as elevating canopy, redesigning pylon, putting short range missile on wing tip etc is freezed in Mk2 design. All this will reduce aerodynamic drag and will improve transonic acceleration by a very good margin.

Mark-2 MWF will continue to have the legacy LCA-Tejas Mk1 and Mk1A design elements which will be powered by single F414-GE-INS6 engine supplied by General Electric which has already started to arrive in India from 2017 on wards. MWF will exceed the performance of Upgraded Mirage-2000 when Inducted into air force but actually will replace Mig-29 first. MWF will also be replacing Jaguar fighter-Bomber which are due to be retired from service from 2034 on wards

Development of MWF was convinced only in 2014-15 period and the whole platform was redesigned and the previous Mk-2 design concept which was just Mk1 air frame with 0.5m fuselage plug has been discarded to allow the platform to be classified as a Medium class aircraft. Since the 5th generation AMCA program was unofficially commissioned way before MWF was conceived, designers were able to feature in a lot of Radar cross-section (RCS) reduction measures in the air frame design to reduce electromagnetic and infrared signatures of the aircraft with use of carbon composite and thermoplastic composites at the frontal section of the aircraft to achieve better RCS reduction.

Another big issue which is addressed is increasing fuel capacity from 2.5 tons to 3.3 ton which will give it a big boost in ferry range and combat radios. Supersonic fuel tanks are also developed. It offers a big fuel capacity with minimum addition of drag. This will further add to range and mission capability to carry out operation in large geographical area.

Canard

It is not only a betterment but was necessary. In fact, ADA had considered canard in LCA Tejas as one the short-selected design concepts in the 1980s. Later the idea was dropped because that was the first time India was developing a Flight Control System (FCS)- that too for a highly unstable

aircraft like Tejas; so adding canard i.e. an extra control surface would have increased the complexities and risk with no significant aerodynamic advantage relative to the complexity. Now that a robust FCS has been developed, adding canard is an incremental development challenge that ADA can handle.

The canard is 'close-coupled' (meaning it is located just above and forward of the wing)

A close-coupled has many positive aerodynamic effects like:

- i) It increases wing lift. For Delta wing design aircraft (like Tejas), close-coupled canard benefits even more- increases lift both in low speed flight and high (transonic) speed flight.
- ii) It creates better aerodynamic stability of wing vortices
- iii) It reduces wing-loading
- iv) It gives an extra control surfaces for pitch and roll control, and on the ground, as air-brakes.
- v) It reduces take-off distance.
- vi) A good area ruling that includes the canard helps to reduce various aerodynamic drag (wave drag, trim drag etc.) hence enhancing its performance.
- vii) Compensation for shift of CG with respect to CL (as said in 1st point)

Shealth

At least Four RCS reduction measures will be incorporated in the air frame design so that " Semi Stealth " can be achieved with help from the use of fully internal electronic warfare system to defuse radar frequency (RF) and infrared (IR) threats while on the mission.

MWF will also get a stealth coating paint which has been developed specifically for the AMCA program but only at certain sections to manage absorption of all radar frequencies. Critical RCS reduction measures in the air frame will be

- 1) Wing and Canard edge alignment to reduce drag and also reduce friction heat and improve RF deflection,
- 2) Air intakes ducts will have twisted design so that engine blades can be carefully hidden inside the intake duct.
- 3) Radar-absorbent materials on the critical sections of the fuselage will be used 4) Sharp edges at front fuselage will also help reduce radar cross-section.

MWF fighter jet program will be replacing entire Mirage 2000, MiG-29 and Jaguar fighter fleet from Indian air force inventory of nearly 200 jets and since it will need to be operated in contested environments where stealth features will come in handy to improve the survivability of the platform and the pilot. MWF cannot be classified as a stealth aircraft but measures to reduce its RCS will ensure its survivability.

MWF will be getting new AESA Radar, on-board oxygen-generating system, Internal advanced electronic warfare (EW) suite, larger Multi-functional displays, the upgraded digital flight control computer (DFCC), Infra-Red Search and Track (IRST). Missile Approach warning system (MAWS) and Higher thrust engines which makes it distinctively class apart from the baseline LCA-Tejas fighter jets.

After building huge inventory of heavy category fighter like SU 30 MKI and developing light weight Tejas MK1, Entire focus of India is now centered on acquiring medium weight fighter like Rafale or other MMRCA. Tejas Mk2 is a surprising sweet option which has emerged for Indian air force.

<https://www.defenceaviationpost.com/2020/04/mwf-tejas-why-tejas-mk2-mwf-will-be-important/>