

CSIR-CMERI Oxygen Enrichment Unit – An Optimised Oxygen Administering Device amidst the Nationwide Oxygen Shortage

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The entire nation is undergoing an unprecedented pandemic situation of COVID-19. Oxygen therapy is recommended for severe illness caused by Coronavirus. There is a massive short supply of Medical grade oxygen across the country. To meet the oxygen demand and minimize the supply chain problem of transportation and storage risks related to oxygen cylinders, CSIR-CMERI has developed 'Oxygen Enrichment' technology which has been transferred virtually to M/s. Apollo Computing Laboratories (P) Ltd, Kushaiguda, Hyderabad on 22.04.2021.



On this occasion, Prof. (Dr.) Harish Hirani, Director, CSIR-CMERI said that the unit requires easily available oil free reciprocating compressor, Oxygen grade zeolite sieves and pneumatic components. It is capable of delivering medical air in the range of up to 15 LPM with oxygen purity of more than 90%. If required, this unit can even deliver up to 70 LPM at a purity of around 30% and can safely be placed in the isolation ward of the hospital for patients who are in dire need of Oxygen. This will help the accessibility of Oxygen in remotest places and widest points of need. The Outreach Factor of Oxygen will be multiplied through the adoption of this in-situ and decentralised generation of Oxygen.

He also added that further research is going on to develop a pulse dose mode which is capable of sensing the breathing pattern of a patient and then deliver during the inhalation only. This mode is supposed to reduce the oxygen demand by around 50% when compared with the current version of continuous mode.



CSIR-CMERI has already invited Expression of Interest (EOI) from Indian Companies / Manufacturing agencies/ MSMEs / Start ups for manufacturing Oxygen Enrichment Units through Technology Transfer.



Mr. Jaipal Reddy of M/s Apollo Computing Laboratories during the event of transfer of technology stated that the first prototype would be developed within 10 days and the production would be started from the second week of May. They have presently the manufacturing capacity of 300 units per day which may be augmented on demand He also informed that their company is planning to develop the unit both as stand alone as Oxygen Enrichment Unit as well as with integrated version with 'Swasth Vayu' technology of CSIR-NAL. Mr Reddy stressed that the unit is essentially required particularly as 'Mini ICUs' at small hospitals and isolation centres and at remote villages and places. By use of Oxygen Concentrators, the optimum utilization of oxygen to the needy patients may also be ensured. If this facility is provided to COVID patients at initial stage, their visits to hospitals and further ventilatory support may be avoided in most of the cases. It was also felt that the use of such units are also safe and easier considering the recent risk factors involved with the Oxygen Cylinders. Mr. Jaipal Reddy appreciated the suggestion of Prof. Harish Hirani to conduct an awareness and training programme for use of the OEU through social media for proper guidance and its effective use by all concerned in association with CSIR-CMERI.

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