



National Chemical Laboratory

(Council of Scientific & Industrial Research)

Dr. Homi Bhabha Road, Pune – 411 008, India



Publication and Science Communication Unit

Press release

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CSIR-NCL develops indigenous Nasopharyngeal Swabs

CSIR-National Chemical Laboratory (CSIR-NCL), Pune has developed an indigenous nasopharyngeal (NP) swab for collecting samples from the throat cavity of COVID-19 patients. In the current pandemic scenario, global supplies of NP swabs are not dependable resulting in supply chain delays, escalating prices and variable quality. The need for making available domestic technology for NP swabs was flagged by CSIR to NCL in mid-April.

Nasopharyngeal swab is a medical device with stringent specifications of quality, polymer grade, dimensions and sterilization. The NP swabs consist of a cylindrical plastic stick with a brush like tip of synthetic bristles/flocks. Flocking is a very important processing step in the manufacture of medical swabs, which is to align the fine bristles in a parallel orientation on the stick head, much like a tooth brush, except that this has round uniform geometry and the NP swab bristles are of micron diameter. CSIR-NCL team of polymer science and chemical engineering scientists including Dr. Chandrashekhar V. Rode, Dr. Prakash P. Wadgaonkar and Dr. Anuya A. Nisal successfully worked out the detailed specifications of NP swab polymers and adhesives. The specifications included medical grade materials that must be used for manufacture, the swab design and the packaging and sterilization protocols. “This is an excellent example of optimizing the polymer specifications and validating the chemical analysis of an urgently needed medical swab product in very short time,” noted Dr. Ashwini Kumar Nangia, Director, CSIR-NCL.

CSIR-NCL has transferred the process knowhow of indigenous NP swabs for sample collection to a Mumbai based chemical company under the COVID-19 technology transfer guidelines of CSIR. After confirming the correct chemical and polymer composition of NP swabs, their diameter, alignment of bristles, and sterilization method, NCL has suggested the next regulatory

pathway for approval of medical devices to the company. They will be able to produce 1 lakh NP swabs per day.



Nasopharyngeal Swabs Samples

Notes to Editor:

CSIR-National Chemical Laboratory (CSIR-NCL, <http://www.ncl-india.org>), Pune India is a research, development and consulting organization with a focus on chemistry and chemical engineering. It has a successful record of research partnership with industry. NCL is a flagship laboratory of the Council of Scientific & Industrial Research (CSIR, www.csir.res.in) which is the largest network of publicly funded research institute in India.