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Mitsui Chemicals, Inc.

Mitsui Chemicals Starts Developing New 3D-Printed Mask with Nagoya University and Spinoff Venture

Mitsui Chemicals, Inc. (Tokyo: 4183; President & CEO: HASHIMOTO Osamu) has begun working on the development of a new, reusable 3D-printed mask with Professor HORI Katsutoshi of the Graduate School of Engineering at Nagoya University*¹ and Friend Microbe Inc. (President & CEO: NISHIDA Katsuhiko),*² a spinoff venture from Nagoya University.



Current prototype of the new 3D-printed mask



Noyori Materials Science Laboratory, Nagoya Univ.

The new mask's key feature is the fact that it not only filters out viral particles but also can be reused.*³ The mask consists of a reusable body and a disposable filter. Mitsui Chemicals will provide the nonwoven disposable filter, which removes viral particles. Professor HORI has produced the mask body using a 3D printer and is investigating enzyme preparations and various other antiviral agents that could be applied to it. Plans are to produce a mask with consideration of design and comfort while also ensuring that it provides outstanding protection against viruses.

In working together with a university, a university startup and a materials manufacturer, Mitsui Chemicals aims to offer socially beneficial solutions and tie this into the development of novel products that will help shape the next generation.

The nonwoven fabric is produced at Mitsui Chemicals' plants in Nagoya and Yokkaichi. Wholly owned subsidiary Sunrex Industry Co., Ltd. (Yokkaichi, Mie Prefecture; President: KAWAHITO Koichiro)*⁴ is meeting strong demand from existing customers thanks to expanded production facilities for the meltblown nonwovens used in masks, which went online in January 2020.*⁵

Further Information

*1 Professor HORI Katsutoshi, Graduate School of Engineering, Nagoya University

<https://www.chembio.nagoya-u.ac.jp/labhp/life3/index.html>

*2 Friend Microbe Inc. <https://friendmicrobe.co.jp/>

*3 Reports on tests by Nelson Laboratories, LLC attest to the viral filtration efficiency (VFE) and particle filtration efficiency (PFE) of the nonwoven fabric slated to be used in the new mask.

*4 <https://www.sun-rex.jp/>

*5 https://jp.mitsuichemicals.com/en/release/2020/2020_0324.htm