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Singapore boosts nationwide mask production

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Singapore has been ramping up its masks production capabilities since experiments have shown that wearing a mask helps to prevent the spread of droplets that may carry the virus.

A*STAR has been working with local enterprises, including local textile and apparel manufacturer Ramatex, to help them design effective masks for Singaporeans' use.

As global supply chains were disrupted by the pandemic, the key challenge in mask production has been the sourcing of raw materials.

Researchers from A*STAR's Singapore Institute of Manufacturing Technology (SIMTech) and Advanced Remanufacturing and Technology Centre (ARTC) collaborated with Ramatex in the search for materials that could work as effectively, if not more so, than what was available.

Tapping on the company's deep knowledge in textiles, and A*STAR's scientific know-how, the team was able to repurpose materials to design a reusable mask that was almost as effective as medical masks, yet as comfortable and reusable as cloth masks.

While the inner and outer layers of the masks are made with synthetic materials that Ramatex developed, the middle filter layer is reinforced with Ramatex's fabric material. When the mask is washed, both the inner and outer layers protect the middle reinforced filter layer to preserve its integrity and filtration properties. For enhanced protection, each layer was made into one seamless piece instead of having two pieces sewn together, hence reducing the chance of germs entering though the seams.

"R&D is important to us in developing novel solutions and products. A*STAR has deep capabilities in manufacturing and a strong culture of innovation, and we are glad to work with them," said Mr Chris Ma, Director of Ramatex. "A lot of science and engineering went into each step of the process to find the right 'formula'."