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Ramkumar: Facemasks enabled returning to normalcy

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Opportunities for cotton in life-saving applications has gained prominence. Thanks to COVID-19, advanced products involving cotton and its blends in non-commodity market space is getting a serious look. With the COVID-19 wave waning and many states in the United States easing their facemask recommendations, it is important to understand the role played by face coverings offering varied levels of protection during the pandemic. It is expected that United States' CDC may also ease its facemask recommendations in the coming weeks.

For nearly two years, facemasks have been a much-debated product, while they have played an important role in curtailing the spread of variants of SARS-CoV-2. Prior to the availability of vaccines, facemasks were recognized by some even in the medical community as “alternative vaccines.” The use of face masks with other countermeasures such as physical distancing, hand washing, and other hygiene measures provided necessary safety measures during the first wave of COVID-19 and duly providing added safety when vaccinations were picking up speed. Face masks are one of the critical tools in the toolbox to fight infections caused by airborne microbes.

The general public has become aware of different types of facemasks and their applications for not only countering COVID-19, but also how they could be used to counter air pollution, which has become a major issue in big cities around the world such as New Delhi and Shanghai.

The use of different versions of face coverings has genuinely spotlighted the use of cotton and its blends. While in public domain, technical details may not have been much discussed, certainly, among stakeholders, from producers to fashion designers, technical advantages of cellulose-based materials for medical and personnel protection have gained support and interest.

HariPriya Ramesh, a doctoral student in the Department of Environmental Toxicology, Texas Tech University, who wears face coverings in indoor public settings such as classrooms said that cotton-based face coverings are comfortable and makes her safe and comfortable in wearing.

As the Omicron wave was peaking in late Fall 2021, the medical community emphasized the need



for high quality facemasks such as N95s. N95s and other filtering facepiece respirators offer highest level of protection, which are needed where higher level of transmissions is experienced.

In communities other than highly vulnerable settings such as hospitals, health care facilities, etc., other making strategies that involve nonwoven face masks in combination with multilayered cotton-based face coverings may be helpful. In all these scenarios, fit is important. The use of cotton-based face coverings as a combo may provide next-to skin comfort, provided the combo structure provides good fit.

This alternate masking strategy considers, filtration, fit and comfort into consideration and has evolved out of two years of class discussions and research in the Nonwovens & Advanced Materials Laboratory at Texas Tech University. Cotton-based multilayered face coverings with more than two layers are needed when used in combination with three-ply nonwoven surgical masks to offer good protection.

Graduate students have been involved both in research on PPE and analyzing the infection and vaccination rates as part of “Countermeasures to Toxins,” graduate level course at Texas Tech University. It has become evident that courses that deal with ongoing crisis result in timely and valuable deliverables. Such activities also strengthen the course material based on relevance and ongoing research, adding value to courses.

COVID-19 has strengthened our understanding that cotton-based textile materials, which have functional capabilities, play vital roles in medical, hygiene and personnel protection applications.

Stakeholders in the cotton, textile and material sectors must focus on non-commodity applications and provide support for much needed R & D in the advanced materials sector.

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