

Singapore develops moisture-trapping film to reduce heat stress in PPEs for health workers

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This novel moisture-trapping film has fast absorption rate, high absorption capacity and excellent mechanical properties

A team of researchers from the National University of Singapore (NUS) has developed a novel super-hygroscopic material that enhances sweat evaporation within a personal protective equipment (PPE) or suit, to create a cooling effect for better thermal comfort for users such as healthcare workers and other frontline officers.

This invention was validated through laboratory tests conducted in collaboration with researchers from HTX (Home Team Science & Technology Agency) in Singapore.

The new desiccant film, which is biocompatible and non-toxic, has fast absorption rate, high absorption capacity and excellent mechanical properties. This means that the material is very robust and durable for practical applications such as for protective suits worn by healthcare workers. It is also affordable, light-weight, easy to fabricate and reusable.

In another laboratory experiment, the research team also showed that body temperature (or skin temperature) could be significantly reduced by 1.5 deg C through evaporative cooling. This further proves that the composite film can potentially help users such as healthcare workers, soldiers or firefighters relieve thermal stress, especially during strenuous activities.