In reply to the article “A simple solution to fogging inside goggles used as a part of personal protective equipment”

Dear Editor,

We read the article by Anand et al.\(^1\) with a lot of interest. The authors have addressed a pertinent issue while working with personal protective equipment (PPE) amidst preventing SARS CoV-2 infection to the eyes. The fogging of goggles often because of leaking of expired air into it despite adequately fitted N95 mask is one of the significant problems faced by the healthcare workers. The fogging hampers vision and hinders work efficiency, especially for those engaged in critical procedures like surgeons and anesthesiologists. The resolution to address this issue suggested by the authors was also novel. However, we would like to put forward a few concerns and suggestions that could be a healthier strategy to prevent fogging without incurring any side effects.

Although the antifogging solution chosen to apply over the inner surface of the goggles were of use to minimize fogging, the chemical constituents of the same (propylene glycol butyl ether, 2- (2-butoxyethoxy) ethanol, fluorocaliphatic oxyethylene, potassium hydroxide, and magnesium lauryl sulfate)\(^2\) were known to produce inflammatory complications on the exposed eyes and skin. Propylene glycol (PG), a common component of water-based paints and cooling liquids, may cause contact allergy and produce ocular and throat symptoms, including escalation of dyspnoea symptoms as highlighted by earlier literatures.\(^3\) Furthermore, the 2-(2-butoxy ethoxy) ethanol (DEGBE) is a liquid belonging to the group of glycol ethers. The substance is widely used as a co-solvent in paints, dyes, inks, detergents, and cleaners. DEGBE has the potential to penetrate the skin, causing systemic exposure and may also cause local skin effects, such as irritation and contact dermatitis.\(^4\) There exists very sparse information on health effects from occupational exposure to PG and DEGBE, highlighted in scientific databases.\(^3,4\) Additionally, the use...
of these chemical coated goggles by the healthcare workers without immersion in water heightens the risk for potential inflammatory side effects in long term use.

The authors had used protective goggles for the application of antifogging marker.[1] In our practice, we found these goggles get fogging within few minutes. Instead, we are using the 3 M Virtua CCS Protective Eyewear 11872-0000-20, Anti Fog Lens Clear [Figure 1], a specially designed antifogging glass, and resists fogging 2–3 h. This antifogging eyewear can be used along with other measures safely to prevent fogging.[2] We suggest that sensitive persons having symptoms of using the antifogging marker to take ophthalmology and dermatology consultation.

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**Conflicts of interest**
There are no conflicts of interest.

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