

PPF009: Poster presentation

**Evaluation tests of a newly developed
disposable respirator – PD-99**

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Abstract

In the scenario of a biological threat, a crucial need exists for protection against exposure. This requirement is usually achieved using disposable masks, which are abundant in the market. However, recent studies, performed by leading research institutes during the 2009 pandemic influenza, suggest that these "off-the-shelf" product provide insufficient protection against airborne biological agents, partly due to inadequate adaptation of the mask to different facial features. This incompatibility met by some users can lead to breaches of the tight seal needed to provide the wearer with suitable respiratory protection.

In an effort to overcome this shortcoming, a joint U.S.-Israeli project was conducted for the development of a new design of disposable mask, which would not only address user's requirements but would also be compatible with different facial features and provide the required seal.

Following a meticulous process, a final design was selected. This design offers a comprehensive solution to the abovementioned problem. It maintains desired features of currently available products, such as user-friendliness, alongside ensuring a tight seal and protection of users from biological threats.

The new, patent-pending mask was recently evaluated for protection factor at the Robert Koch institute (Germany). When compared to a leading product, the new mask was able to achieve consistent high passing scores (in the range of 368 to 1,366). All examinees were able to achieve a good and consistent facial fit, tight seal, and high protection factors, with the exception of one thickly bearded examinee.

In conclusion, the newly developed mask, which uses innovative features to ensure a tight seal, is a good alternative to models currently used, especially for users with challenging facial features.