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The Army Invented a Scarf That Keeps Out Tear Gas

Uncle Sam needs your design help to finish the project.



By Eric Tegler Nov 5, 2015 @ 8:54 AM Military Research



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U.S. Army

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When soldiers, special operations operators, or police know they're running into a place filled with tear gas or other noxious fumes, they don their traditional full general protective mask made of hard, non-flexible material. It keeps them breathing and safe, but it's not exactly the easiest thing to put on. Besides: What if you're taken by surprise?

The Army wanted a lightweight mask that its people could carry with them, and which they could get on in moments. Troops in the field also wanted a mask that could protect users who have beards (hello special ops), or must operate with other head-borne equipment. So a trio of researchers at the Army's Edgewood Chemical Biological Center (ECBC) conceived and began development of a flexible mask to protect users against riot control agents like tear gas. The mask shows promise—but the Army needs partners to help complete its development.

"The solution we envisioned would easily integrate with the user's helmet, communications headphones, and protective eyewear, so that it could provide a simple solution for all users," says Dave Caretti, one of the three scientists. Obviously, the mask would be useful to law enforcement personnel as well, replacing conventional full-face piece respirators.

Caretti, Baker and Wilke channeled their idea through an internal ECBC

program intended to support innovative employee proposals. The idea was accepted and the team received one year's support to flesh it out. After doing some research and getting commercial vendors to donate materials that protect against particulates and vapors, the team worked with ECBC engineers and another design shop experienced in making items for sportswear. Several models of the mask were shared with the user community.



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The interaction yielded a simple, comfortable wrap that can be put on without removing any of your headgear first. The wrap includes a material with one-way stretch and can be pulled around the user's headphone ear cups, as well as the back of the helmet for full protection. Its internal filter passed the National Institute for Occupational Safety and Health standards for protection from a CS riot control agent and demonstrated a filtration capacity of up to 140 minutes.

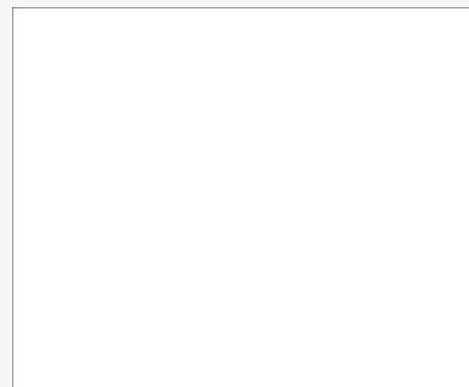
However, the mask does not yet integrate crucial eye protection. The team has considered putting gaskets similar to those found on swim goggles on sunglass-style protectors, which would then seal around the eyes to the face. Fabricating eyewear prototypes will require new funding now that the year-long ECBC support has ended. That's why Paul Gardner, chief of ECBC's Respiratory Protection Branch, is reaching out to industry and potential customers.

"We've taken the project as far as our funding allows, and we're actively seeking customers with a requirement for this technology who are willing to fund the project through the remainder of the R&D phase."

Interested parties are welcome to contact ECBC. There might be a cool pair of sunglasses in it for you.

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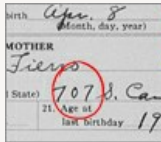
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