

Soldier Armed

Military Combat Eye Protection

By Scott R. Gourley

Military combat eye protection (MCEP) eyewear was introduced early during Operations Enduring Freedom and Iraqi Freedom. Designed to protect warfighters' eyes from external threats and hazards, today MCEP is viewed as an umbrella program geared toward eye protection and vision correction.

MCEP emerged in 2004 through the cooperative efforts of multiple organizations, including the Army Medical Department (AMEDD), Office of the Army Surgeon General and Program Executive Office-Soldier. Initially distributed through the Rapid Fielding Initiative, MCEP spectacles and goggles are now issued during initial entry training and may also be purchased through normal logistics channels. In addition, optical prescription inserts may be ordered at the home station optometry clinic and in theater.

AMEDD descriptions characterize MCEP program success as "phenomenal," crediting MCEP use with significant reductions in eye injury-related evacuations from theater. The MCEP program approach emphasizes both choice and testing. Choice translates to a variety of available authorized protective sizes and styles to meet mission needs while also improving soldier acceptance and reducing the likelihood of eye injuries. Eyewear products must pass rigorous tests, with successful completion leading to acceptance on the Approved Protective Eyewear List (APEL). Eyewear not on the APEL is not authorized for wear during combat, training or when there is a risk of impact injury to the eyes.

"There were a lot of eye injuries," explained Sean Carey, central regional sales manager for Revision Military, one of the providers of MCEP systems. "The Army started to look at what was

out there in industry that could ... protect soldiers' eyes. They came up with a few different opportunities for protection. By implementing the APEL program they reduced eye injuries ... by half."

The APEL list is frequently updated and recently included spectacles and goggles from a variety of manufacturers, including Revision, Wiley X, Oakley, ESS (Eye Safety Systems), Smith Optics, Uvex and Arena (goggles).

"Soldiers first get our eyewear in basic training," Carey continued. "They get issued Desert Locust [goggles] and Sawfly [spectacles] for their training because of ... durability, scratch resistance and the design."

According to Ryan Wilkerson, government sales program manager at Wiley X, the company currently has four systems on APEL, including Talon, PT-1, and SG-1 and Spear goggles.

Wilkerson emphasized that the systems provide additional ballistic protection over standard eye-protective safety glasses, stopping bigger projectiles traveling at higher rates of speed.

"They're not bulletproof," he said, "but they will protect against fragmentation."

Revision's Carey also highlighted protection levels, calling Sawfly's spectacle design "the best eye protection on the planet ... Everything on this frame and everything on this lens is designed that way for a reason," he said. "There is nothing on there that's superfluous. There is nothing on there because 'we thought it would look better that way.' We based our idea off four main tenets: superior ballistics, flawless optics, rugged durability and [being] 100 percent U.S. made. All four of those are very important."

In terms of ballistics, for example,



U.S. Army/SSG Mark Burrell

Wearing ballistic eye protection that helps reduce battlefield eye injuries, CPL Justin L. Gessert, 327th Infantry Regiment, scans the horizon from his fighting position on a remote hilltop in eastern Afghanistan's Nuristan Province.



U.S. Army /SSG Ryan C. Matson

Tinted lenses afford protection from the glare as 1LT John Dundee and his soldiers return from patrol to their Combat Outpost Najil in Afghanistan's Laghman Province.

Carey credited the lenses with the ability to “stop a 12-gauge [shotgun] with #6 shot at 16 feet ... Our goggles will stop a .22-caliber round at 900 feet per second. They are 24 and 32 percent higher than military specifications for their classes.”

He also explained that the product has evolved over a decade of user feedback. “As we got soldier feedback, one of the things we saw was that there is very little ‘real estate’ around soldiers’ eyes and ears, but there are a lot of things going on up there,” he said. “You have communication devices [comms], hearing protection, helmet straps, eye protection and a few other things if you have a Land Warrior system.

“Along the way we had feedback from our end users on places like our Facebook wall, saying, ‘Your arms are kind of thick.’ So we went back to the drawing board and redesigned the arms. We now have thin arms on the side for comms and helmet compatibility. They’re more comfortable, with-

out being so thin that they slice down on the top of the ears. ... They also wrap around the back of the head instead of behind the ears, because now when you’re wearing comms and a helmet you can slide them straight on and off. We introduced recessed temples in front of the eyewear because if you had a straight arm, your helmet strap would push in and give you hot spots on your temples. With that recessed temple, it’s now close enough to your skin that it’s comfortable when that helmet strap is fastened. There’s also an apex on the front of the frame. It was designed that way because when you are wearing gloves, it is easier to grasp the frame to change out lenses twice a day from clear to smoke and from smoke to clear.”

The need to change lenses twice a day may become a thing of the past under a future effort known as soldier protection system (SPS). A new program from the Army’s product manager for soldier protective equipment, SPS will consist of multiple protective subsystems, including eye protection.

Threshold (T) and objective (O) requirements for the next generation of spectacles and goggles include 10 percent (T) and 15 percent (O) increases for spectacles and 5 percent (T) and 10 percent (O) for goggles. Most significantly, the next-generation systems anticipate variable transmission lenses with transition from 18 to 68 percent (T) and 18 to 89 percent (O) in less than one second.

Several contractors are believed to be refining their variable transmission designs following a request for information and sources released in fall 2012.

According to Wiley X’s Wilkerson, a less-than-one-second goal for variable transmission photochromic technologies on protective lenses represents an interesting challenge.

“We’re working on some new technologies,” he said. “It’s new technology; new to the industry, and our research and development people are working on it feverishly.”

For additional information, visit <https://peosoldier.army.mil/equipment/eyewear>. ★