

Proven performance for safety and protection

PLASTICS IN
GOVERNMENT
& MILITARY
APPLICATIONS

by Patsy Stevens

DuPont has a rich history of working with the U.S. government and responding to its needs with world-class technology, products and consulting services. DuPont has committed the resources of many of its technical people to developing the technology that leads to superior military ballistic products and has contributed strongly to the advancement of that technology.

DuPont is committed to the U.S. military market as evidenced by the technical and marketing resources devoted to military ballistics. It all began in 1965 when Stephanie Kwolek, a DuPont research scientist, developed DuPont™ KEVLAR® brand fiber by spinning the fiber from liquid crystalline solutions. Today, there are many exciting applications for KEVLAR, not only for the military, but for law enforcement personnel.

Law enforcement applications

More than 2,850 officers' lives have been saved as a result of protective body armor



A police officer adjusts her protective vest made with DuPont™ KEVLAR® brand fiber, which is up to five times stronger than steel on an equal-weight basis.

as documented by the IACP/DuPont™ KEVLAR Survivors' Club®. Concealable, light weight, bullet-resistant vests based on KEVLAR technology have played a significant historical role in protecting those who protect us on a daily basis.

Because law enforcement and correction officers around the world have no way of knowing the threat they could be walking into at any time, DuPont introduced a new, sophisticated body armor system in 2001 — the first flexible system to protect against knife and bullet threats.

Unlike the heavier, bulkier protective garments typically made of metal or ceramic, vests featuring KEVLAR® MTP™ technology are much lighter, concealable, flexible and comfortable for everyday wear. Body armor with this new technology provides protection to officers involved in a wide range of duties such as airport security and prisoner transport, or in quelling domestic disputes — where the type of weapon threat is always unpredictable.

The most recent innovation from KEVLAR is KEVLAR® Comfort XLT™. This ballistic technology helps provide protection without sacrificing comfort and the freedom of movement that law enforcement officers depend on to do their job. KEVLAR Comfort XLT is a patented technology that delivers significantly improved ballistic performance, which enables vest designs to be at least 25 percent lighter than current all-aramid fabric designs. That's a big weight off any officer's shoulders.

Military applications

For the men and women serving in the armed forces, no two assignments are the same. One week they may be charged with protecting a high-ranking attaché from the veiled threats of terrorists. A month later, they may be dispatched to protect a defenseless village against armed and violent oppressors. The one thing that helps protect them, however, remains constant. And that is DuPont KEVLAR.

Military applications for KEVLAR include vests, helmets, gloves, parachutists' rough terrain suits, anti-mine boots, mine removal chaps, explosive ordnance disposal suits and ballistic blankets. Here are some examples:

- **Body armor** — Fragment- and bullet-resistant vests made with KEVLAR have helped protect hundreds of thousands of military personnel from death and serious injury for almost 20 years. The Interceptor Vest represents the next generation of multiple-threat body armor technology. It provides protection against a range of fragments and handgun bullets under extreme environmental conditions. The vest also meets stringent performance specifications related to flexibility and heat stress requirements. Lightweight comfort allows military personnel to move freely and easily in the field, in armored vehicles or in combat.

- **Helmets** — Helmets made of KEVLAR are 25 to 40 percent more resistant to fragments than their steel predecessors at equal weight. For years, DuPont has worked closely with the U.S. Army's Natick RD&E Center to revolutionize helmet design. Since replacing the "steel pot" helmet in the late 1970s, PASGT helmets made of KEVLAR have been produced for military personnel around the world. Its armor is superior for protection against exploding shrapnel and fragmentation, as well as heat and flame.

- **Armor** — For combat vehicles, spall liners are composite panels composed of KEVLAR that are mounted to the inside of the vehicle shell structure. Used alone or in combination with metals or ceramics, spall liners of KEVLAR help increase the survivability of those working in combat vehicles. Plus, KEVLAR does not melt or shrink when exposed to heat and flame, and only carbonizes at very high temperatures (about 900°F/482°C in air). It's also extremely resistant to cuts and a broad range of chemicals. ■

For more information, visit www.dupont.com or www.kevlar.com.