

The First Line of Defence: The Infantry Soldier

Susannah Rayfield, European Brand Manager for INVISTA's CORDURA® brand, discusses developments in infantry soldier clothing from 1930's to present day.

A Look at Infantry Clothing – Past, Present and Future

Despite the vast array of technological advancements in military warfare throughout the 20th and 21st centuries, the ultimate weapon on the battlefield has remained the same for military forces around the world – the infantry soldier. Each war brings new challenges to infantry soldiers of all nationalities. Improvements in uniforms give a critical advantage for success in combat on the evolving battlefield.

Over the years, CORDURA® fabrics based on Nylon 6.6 fibre technologies have helped to revolutionise military apparel. By offering durability, reliability, and versatility, these fabrics have allowed infantry soldiers to face a broad spectrum of combat conditions, including desert, forest, jungle, temperate and other extreme climate related elements. The diverse technology components included in the CORDURA® fabric family such as high tenacity, abrasion resistance, comfort, near-infrared (NIR) compliance, and thermal protection - have helped support a long history of innovative and effective solutions for the infantry soldier across the globe.

World War II (1939 – 1945)

In the early 1930s, the British War Office began research to replace the Service Dress (SD) that had been a combined field and dress uniform since the early 1900s. After extensive field trials of other

uniforms, the Battle Dress (BD) was adopted. Variants of the BD adopted by the British War office were worn by several other countries during World War II, such as Australia, Canada, India, New Zealand, South Africa, the United States of America, Belgium, Norway and the Netherlands. The BD truly became a standard of dress for military forces around the world.

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Although the BD proved to work well in the temperate weather, the cotton/wool-based BD uniforms were ill-equipped to handle the cold winters experienced in World War II. The uniforms were not able to protect infantry soldiers from freezing temperatures and inclement weather conditions.

Post World War II: The Malayan Emergency (1948 – 1960), Korean War (1950 – 1953), Mau Mau Uprising (1952 – 1960), Suez Crisis (1956 – 1957), The Falklands War (1982)

Following the close of World War II, infantry soldiers found themselves fighting in new

terrains with challenging environmental conditions. Over the course of various battle engagements, the different terrains revealed that natural fibres deteriorated rapidly under exposure to extremes of weather and environments.

In the early military campaigns in North Africa and the Mediterranean, infantry soldiers were issued khaki-coloured BD uniforms. While the khaki-coloured BD uniforms helped infantry soldiers to blend into the desert terrain, the khaki BD uniform was impractical for soldiers fighting in the jungle terrain of the Far East. A new Tropical Combat Dress (TCD) uniform in jungle green was developed with a shirt, jacket, and trousers made from loosely woven cotton.

Due to heat-intensive tropical temperatures, soldiers found that cotton-based uniforms retained moisture, causing their clothes to become discoloured with sweat. The sweat retention frequently caused rashes and fungal infections - "jungle rot." In winter, the infantry soldiers' uniform had to be supplemented with additional warm clothing.

With the end of National Service conscription in 1961, the British army looked for a new uniform for its infantry soldier. A four-colour camouflaged uniform known as "Pattern 1960 DPM" (Disruptive Pattern Material) was issued, suited to engagements in multiple terrains. The Pattern 1960 DPM, which is similar to the more recent Combat Soldier 95 (CS95), was designed to be both light-

weight and durable, layering articles of clothing versus a single thick layer.

Across the Atlantic Ocean, U.S. military forces were also making improvements to their military issued uniforms. The end of WWII resulted in a new threat – thermonuclear weapons and resulting flash exposures. In 1962, U.S. military forces adopted thermal resistant CORDURA® NYCO fabric for their arctic battledress uniform. In 1978 CORDURA® NYCO fabrics were adopted for the temperate weight battledress uniform. Infantry soldiers during the Vietnam War encountered wet and warm equatorial conditions. Infantry soldiers found they needed a uniform with increased durability to withstand the environmental challenges of a six-month monsoon season, a severe range of fluctuating temperatures (5°C - 40°C), and rugged terrain. Infantry soldiers were issued with a temperate weight BDU (Battle Dress Uniform) made from highly durable, thermal ignition resistant CORDURA® NYCO fabric.

The Persian Gulf War – Operation Granby (1991)

Infantry soldiers serving in Operation Granby encountered extremely hot temperatures coupled with migrating sand in the desert terrain, both of which had deteriorating effects on uniforms. Infantry soldiers found that the abrasive desert sand slashed cotton uniforms in two to three weeks. The heat also posed a challenge to the temperate weight fabric. Infantry soldiers often had to stand down in the 38°C to 50°C heat.

In response to the need for a more durable solution for the desert combat uniform, INVISTA developed CORDURA® NYCO rip stop fabrics. Less susceptible to sand abrasion, the CS95 lasted two to three times as long as the cotton BDs in both combat and training.

The military advancements developed during and after Operation Granby

provided infantry soldiers camouflage to evade opposing forces, and new technology to identify potential threats. In addition, CORDURA® NYCO fabrics were further engineered to help infantry soldiers withstand the hot temperatures of the desert terrain, and reduce sweat retention in their uniforms, that were encountered in previous military engagements.

OEF/OIF: Operation Enduring Freedom/Operation Iraqi Freedom (2003 to Present)

Operation Iraqi Freedom (OIF) has required a whole new level of increased performance and protection for the infantry soldier. Infantry soldiers in OIF often have the responsibility of maintaining local security and have increased personal interactions with potential agents of the opposing forces. Infantry soldiers also need increased performance abilities with their uniforms, due to the hot, dry, sandy and rocky terrain of the Iraqi desert.

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In response to the need for lightweight, high tear strength, highly abrasion resistant fabric for infantry soldiers, INVISTA's CORDURA® brand team is working on a new range of CORDURA® NYCO fabrics to meet this need. At less than 200g/m², the fabrics are expected to offer the ideal performance in terms of durability and comfort for desert uniforms. Over the past 45 years, CORDURA® NYCO fabrics have been proven to meet the needs of infantry soldiers around the world, and this development work signals the next generation of combat uniform fabrics.

OIF has brought one of the deadliest new weapons to the frontline to face the infantry soldier - the Improvised Explosive Device (IED). In 2008 INVISTA's CORDURA® brand team launched the CORDURA® Baselayer brand t-shirt featuring No Melt No Drip thermal performance when exposed to heat in flash fire situations such as from IEDs or vehicle fires. CORDURA® Baselayer fabric is constructed with a unique blend of INVISTA T420 nylon 66 fibre and cotton. When exposed to high temperatures, the nylon fibre gels, rather than becoming molten, and chars around the cotton, creating an entirely new fabric structure with a higher ignition resistance that does not melt or drip on to the skin underneath like polyester.

The CORDURA® Baselayer Brand t-shirt offers durability, but it is also lightweight, with exceptional moisture management. CORDURA® Baselayer fabric has already been adopted by Atlanco for its TRU-SPEC® brand Tactical Response combat shirt.

Looking Ahead

Appropriate uniforms are a significant factor in the success of the infantry soldier's mission. By learning from previous conflicts, developments have increased the comfort of uniforms and brought life-saving improvements. Continuing adoptions in apparel have resulted in soldiers being lighter, faster and more efficient. By continually advancing the technologies upon which CORDURA® fabrics are made, INVISTA is honoured to play a key role in the successes of the military on the battlefields, and in peace-keeping missions. ■

CORDURA® is a registered trademark of INVISTA for durable fabrics

