




Mount Everest Gear Performance Report



Expedition Hanesbrands was an incredibly valuable initiative for Hanesbrands Inc. and its *Champion* and *Duofold* brands. The team successfully accomplished their primary goals on Mount Everest to test specially designed gear never before developed for an extreme weather expedition of this kind; gather feedback and lessons learned to determine what technologies and garments are commercially viable; and meet the challenge set forth by CEO Rich Noll to develop a thin extreme weather coat that did not look like anything else on the market.



The company's Research and Development team worked for more than two years with expedition leader Jamie Clarke to develop, test, refine and retest all of pieces. As the trekking and climbing teams departed for Mount Everest in March and April 2010, the company had faith that their innovations would perform and ultimately protect their team from the extreme conditions. All layers of the gear were worn throughout various stages of the expedition and performed at or above expectations. Many pieces were worn on the summit of Mount Everest in May 2010.

Below are the details of how the gear performed:

THE GEAR	DESCRIPTION	HOW HIGH DID IT GO?	HOW DID IT PERFORM?	WHAT'S NEXT?
<p>Champion Supersuit</p> 	<p>The <i>Champion</i> Supersuit prototype proved to be the thinnest, warmest extreme weather coat ever developed for a Mount Everest expedition. This is due to significant advancements in the textile applications of aerogel into a material called Zero-Loft, a nano-technology "super insulator."</p> <ul style="list-style-type: none"> The benefits of the Supersuit over a traditional down coat include durability, its hydrophobic properties and the insulation improvements despite compression. 	<p>The Supersuit was worn up to Camp 3 (just under 24,000 feet) on Mount Everest.</p>	<p>The Supersuit was worn in minus 40° F temperatures and is described by expedition leader Jamie Clarke as the warmest coat he has ever worn. It performed best in extreme temperatures when rigorous aerobic activities were not taking place.</p> <p>The radiant foil layer, which is found throughout the entire garment, did its job to radiate heat back to the body. However, during more rigorous activities the foil prevented the escape of moisture.</p>	<p>We have more work to do to make the garment ideal for long-term aerobic activities. The tests performed by the climbing team show that with further adjustments, a Zero-Loft insulated coat has the potential to change the way that other manufacturers approach the development of extreme weather apparel.</p>

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<p>Dual Socks System</p> 	<p>We designed an inner sock meant to prevent hot spots and blistering, and an insulating outer sock to work in concert with each other and the boot to keep our climbers' feet warm.</p> <ul style="list-style-type: none"> The inner sock is made from a cellulosic yarn made of liquid-filled micro capsules that absorb, store and return heat, and help the human body to wick away moisture and moderate temperature. The outer sock is primarily for insulation and made from a wicking wool-blend fabric. 	<p>The dual sock "system" was worn together until Camp 4, when the inner sock was removed due to swelling caused by high altitude. The insulation sock was worn to the summit of Mount Everest.</p>	<p>Jamie Clarke describes both of the sock layers as excellent at keeping your feet "toasty warm."</p>	<p>The Hanesbrands sock team is determining which aspects of these items can be incorporated into future consumer products.</p>
<p>Duofold Seamless Base Layer</p> 	<p>This item combines multiple knit techniques – six constructions per garment –to create the form-fitting <i>Duofold</i> seamless base layer top and bottom:</p> <ul style="list-style-type: none"> The spandex-blend fabric provides stretch in all directions, and has a built-in moisture management system. Each piece includes variable insulation areas: higher insulation (such as the exposed area on the outside of the arms), lower insulation (where the backpack sits on the upper back) and high moisture transport (such as in the armpits and lower back). 	<p>The seamless base layer top was worn up to Camp 3. The seamless base layer bottom was worn to the summit.</p>	<p>Jamie Clarke tells us the base layer allows for mobility without creating friction and has excellent wicking capabilities.</p>	<p>This product will be available to consumers in fall 2010.</p>

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<p>Insulating Base Layer</p> 	<p>The insulation layer works in tandem with wicking and breathability. It creates a layer of air to help the body retain heat in extreme conditions.</p> <ul style="list-style-type: none"> • Uses Optimer Brands' Dri-release wicking polyester with wool fabric to provide significant insulating properties, superior stretch and four times faster drying than wool alone • Naturally antimicrobial • Works in tandem with base layer fibers to prevent catching, picking and snagging • Lock-down zipper garage prevents metal contact with skin at the neck • The versatile and discrete thumb-hole doesn't bind and is integrated into the cuff • All seams are positioned to prevent overlap with seams of other layers 	<p>The insulating layer was worn to the summit of Mount Everest.</p>	<p>These pieces were a favorite of the climbing team who describe the pieces as comfortable and high performance.</p>	<p>A consumer version is available, <i>Duofold's</i> Varitherm High Performance Wool base layer, which is already a consumer favorite. It won the Gear Junkie's "Gear of the Year Award" in 2008.</p>
<p>Soft Shell</p> 	<p>The soft shell was designed to be a versatile, lightweight garment to be worn on the trek to Mount Everest base camp and at the various camps in between climbing activities. Its primary purpose is to insulate, but it also manages body temperature and moisture.</p> <ul style="list-style-type: none"> • The jacket is constructed of three layers: a water-repellent and wind-resistant knit outer layer, a breathable vapor membrane and a thermal grid fleece inner layer. The garment helps to minimize abrasion, pilling, and picking – making it easy to wear other layers on top of it and keep from snagging equipment. • The pants feature a soft polymer-coated fleece fabric with a printed-on surface for abrasion resistance. They have a slick feel but remain breathable, water-repellant in light rain and wind resistant. 	<p>The soft shell pieces were worn in base camp, and at Camp 2 and 3. Due to the colder temperatures at higher altitudes, they were not appropriate beyond Camp 3.</p>	<p>Jamie Clarke describes the pieces as comfortable and a great insulator.</p>	<p>Hanesbrands is determining what aspects of these items can be incorporated into future consumer products.</p>

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<p>Hard Shell</p> 	<p>The hard shell does it all – it’s breathable, weatherproof and flexible. It uses a new two-ply stretch-woven fabric that remains pliable at cold temperatures.</p> <ul style="list-style-type: none"> • Micropores channel vapor away from the body while keeping water and wind out • Lightweight stretchable two-ply knit fabric with laminated membrane • Arm pit zips, stretch cuffs, and an integrated hood that can be tightened down • A thin foam insert prevents the jacket from creeping up • The double zippers placed behind the hip for comfort when sleeping also allow for easy removal • Ergonomically-placed, silicone-sealed zippers and ingenious pass-thru zippers reach soft shell pockets on both the jacket and pants 	<p>The hard shell jacket was worn up to Camp 3.</p>	<p>Jamie tells us the hard shell proved to be incredibly rugged through the abuse and harsh elements on Everest. It was waterproof, windproof, breathable and flexible. The articulated knee (with removable knee-pads) allowed greater ease of movement. He also liked the pass-through pocket feature allow you to access zippers and inner pockets of other layers of garments.</p>	<p>Hanesbrands is determining what aspects of these items can be incorporated into future consumer products.</p>
<p>Knit Cap</p> 	<p>The knit cap was developed by Hanesbrands’ sock team and is made of Prima-loft that provides the dual benefits of wicking and warmth.</p>	<p>The knit cap was worn the summit of Mount Everest, and slept in for warmth during the night.</p>	<p>Jamie Clarke and his Sherpa team describe it as comfortable, warm and an item that was widely used.</p>	<p>Hanesbrands is determining what aspects of these items can be incorporated into future consumer products.</p>

Available to Consumers

As a result of Expedition Hanesbrands, both the *Champion* and *Duofold* brands are moving forward to commercialize certain products that will be available at national retailers and on ChampionUSA.com in Fall 2010:

- The *Duofold* Seamless Base Layer available to consumers is the same item worn by Jamie and the climbing team on Mount Everest.
- *Champion* will introduce a new line of Cold Weather Gear that was inspired by the various items created for the climbing team. The new line includes base layers, soft shell and hard shell pieces that can be worn together or in tandem to wick, insulate and breathe.