



The wall charts have been sent around the world, enthusiasts and fans can plot the course of their favourite teams, the television torrent starts May 31 and reaches its climax on June 30. The disinterested and disenchanted are planning their TV viewing to avoid any contact with the sport. The big names are already out there, and we're not referring to the David Beckhams and the Zinedine Zidanes of the soccer world. No, it's the ubiquitous brands of sport: adidas is kitting France, Spain, Argentina, China, Japan and Germany; Kappa is worn by Italy; Nike will be on the backs of Portugal, Russia, United States and Brazil. England has put its faith in Umbro. And we haven't mentioned them all.

The battle of the brands

From the point of view of a textile technician the apparently unending succession of international soccer championships must be tiresome. No sooner is one brilliant innovation away on to the backs of the chosen squads – and the replicas on sale to the hundreds of thousands – than the marketing team are screaming for the next idea, the next push at the performance envelope, the next 'must have'. It can only be assumed that technologists work so far in advance that they are unmoved by the immediacy that provokes such frenzy in their colleagues. The laws of chemistry and physics, and not those of supply and demand, govern their priorities.

The 2002 World Cup is certainly at the frenzy

stage as this issue goes to press, with the national media in each home country devoting acres of newsprint and hours of broadcasting time to soccer heroes and their families. The technical performance inherent in the kit each team will be wearing in Asia is of little importance to the fans. As long as the replica matches the look of the original and generates the dream – what matter that it is capable of keeping the body cool or the leg muscles at optimum efficiency for ninety minutes or so?

But, to the technicians, there is a point to their work whether heroes or followers wear it now or in the future. The developments being crafted today will often find their long-term mark in everyday clothing. Sporting innovation in woollen fibres imparts a benefit to woven suit



fabrics. Improvements in moisture management are subsequently transferred to leisure garments worn in tropical climates.

So consider the following short overview of the 2002 World Cup soccer garments as the precursor to the High Street in 2005-6-7-8.....

Keeping moisture moving

Given the location of the championships no one will be surprised that the majority of the brand owners have concentrated their technical resources on improving moisture vapour transfer rates (MVTR), treating the kit 'package' as a whole rather than shirts, shorts and socks as individual items.

With the performance and comfort of the athletes in mind, Nike has worked for two years to develop a revolutionary new two-layer technology it has labelled Cool Motion.

"When Nike started designing the new World Cup kit, there were three key issues we had to address: weight, comfort and heat/humidity. Each one of these issues distracts a player from his game and therefore affects his performance negatively," explained Craig Buglass, Nike's Football Creative Product Designer.

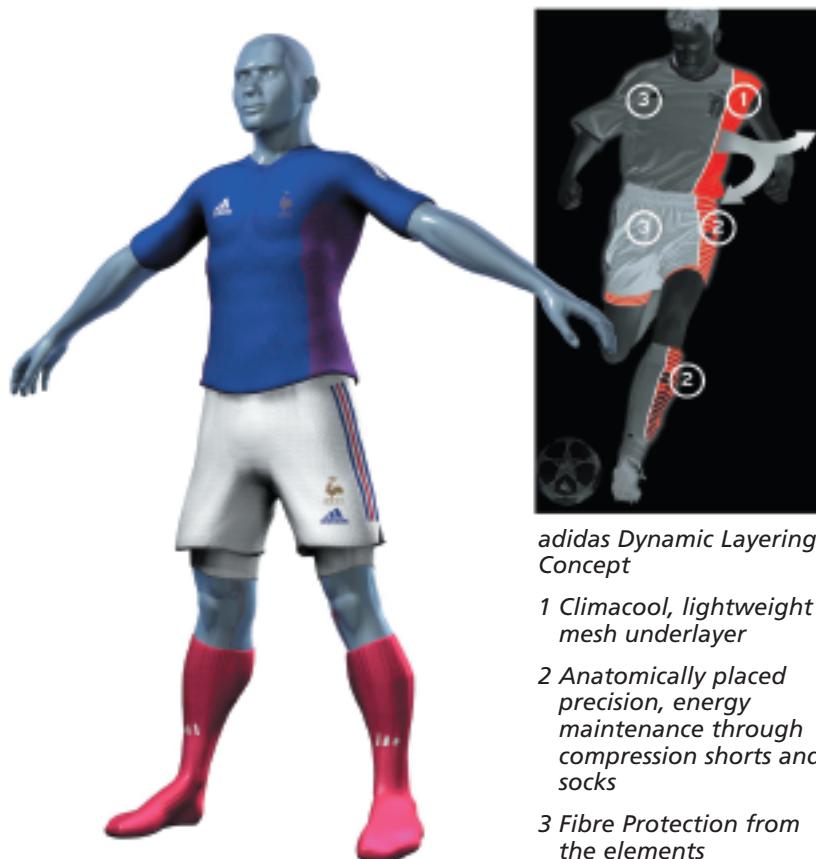
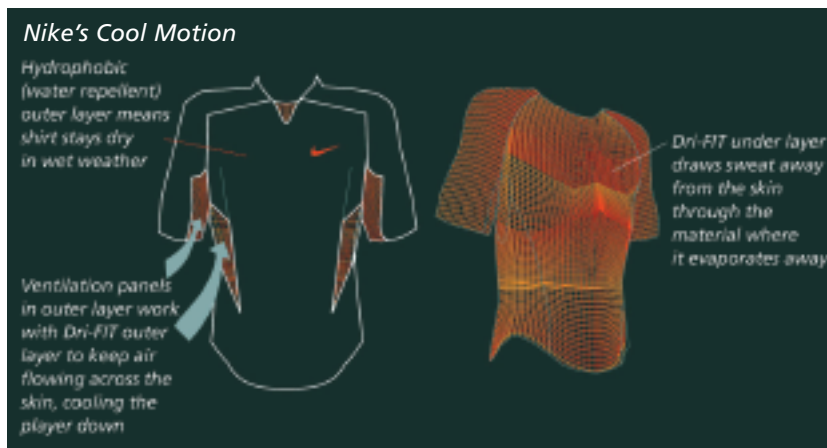
Cool Motion is a two-layer structure designed to improve comfort and ventilation. The player's movement channels cooling air over the body, air that enters the garments through strategically placed ventilation panels. Vents in the upper part of the kit create a constant chimney effect as the moisture vapour-laden air funnels out through them.

"This helps regulate the player's temperature and disperse moisture to maintain comfort and allow him to concentrate on the game," said Buglass.

According to feedback from players and coaches, and research by Nike, two of the biggest problems experienced by players during a game are heat and perspiration. While on the field of play, they spend on average some 2.3 minutes standing still; 46.4 minutes walking; 38 minutes jogging; and 11.3 minutes running hard. The high levels of body heat and perspiration they generate have an enormous impact on their match performance.

The Cool Motion technology militates against a sudden increase in body temperature whether players are standing still or in motion. The inner layer of the uniform is Nike's Dri-FIT fabric, which rapidly pulls perspiration away from the skin and spreads the moisture over a wide surface area for quick evaporation. The outer layer of the shirt is hydrophobic, keeping it dry in the extreme humidity likely to be encountered for the duration of the competition.

Some of the fashion critics have not been so kind to Nike but it seems that they are considering the intricate designs which, admittedly, have been created for the players. One critic is of the opinion that the Kappa design for the Italian team is fine but, being tight fitting, it might not be kind to fans who have over-indulged on food and drink.



High-tec prevents injuries

Layering is also the technique adopted by adidas. Its two-fold Dynamic Layering Concept (DLC) consists of a close-fitting Skin Layer and an outer Protective Layer, both incorporating the company's Anatomically Placed Ventilation (APV) technology to maximise air circulation.

Next-to-skin garments are close-fitting textiles: Climalite moisture management throughout is supplemented by Lycra Power yarns in the shorts and socks. The latter is said to control muscle vibration and reduce energy loss.

The stretch mesh outer fabrics are integrated into the design to ensure that the close fitting cut is maintained, a high level of ventilation is retained and sliding injuries reduced. All are treated with DuPont Teflon stain release. The shorts design guarantees no bunching, minimal drag and maximum comfort, says adidas. The sock protection layer reduces shearing forces and prevents blister formation. The APV provides air



UMBRO, the brand devoted to football, has improved on the ground-breaking technology employed in the first XAI boot to give players even greater levels of grip and feel for the ball. England's Michael Owen (left) with Sweden's Henrik Larsson

circulation and secures optimum moisture management.

The England squad will be wearing ice vests to help them cope with the extremes of heat and humidity in Korea and Japan, and they will be the only team to do so.

Developed by the Australian company Arctic Heat Products, the sleeveless design is a hi-tech garment that contains special crystals. Soaked in water and placed in a freezer before use, it is said to maintain a constant low temperature for several hours. It could help to improve the players' stamina, and enable them to run faster, sweat less and avoid dehydration.

A spokesman for the English Football Association has commented, "It brings down the core temperature of the body and reduces the time it takes for a player's body heat to reach the critical figure of 39.5°C. The players will wear them during training, before matches and at half time. Even substitutes will wear them on the bench."

UK manufacturer Umbro's contribution to the World Cup is the new England away kit – including the first fully-reversible shirt. Classic vermilion red reverses to navy blue with the St George's cross emblem incorporated into both sides, and the collar, cuffs and labelling.

Umbro says that, even with a reversible jersey, the technicians have managed to achieve a high-tech, performance garment 23% lighter than its predecessor. The designers have also used body-mapping techniques to create a dynamic anatomical shape, giving the players an enhanced level of movement and comfort. The construction provides excellent moisture and humidity control that should significantly help the England squad. There is no comment from Umbro on the kit's likely interaction with an ice-vest.

Fancy footwork

The players have much more freedom when it comes to the footwear they play in. If Umbro is pleased with the England strip, the company appears to be even more delighted with its new XAI boot which has only recently reached the feet of footballers. It was the XAI which the company claims helped England's Michael Owen become European Footballer of the Year and Henrik Larsson claim the UEFA Golden Boot. The new version apparently uses even more of the revolutionary Rubberised Kangaroo Technology (RKT). The medial side of the new boot, the area most often used for striking the ball, has been left clean to allow the maximum application of RKT – a breakthrough material that combines soft kangaroo leather with rubber in a single layer. According to independent research, RKT material provides superior levels of grip on the ball, compared with materials used by leading competitors, with the result being better control, more grip, more swerve. Kontakt outsole technology is an exclusive feature of XAI, offering excellent grip and pressure distribution through both the 14 stud firm ground and the 8 stud soft ground boots. The new XAI also features the Advanced Fit Concept, with every part of the boot contoured to follow the natural shape of the foot. Tens of thousands of England fans must be hoping that the technology will work when it counts.

The adidas Predator Precision II is said to be David Beckham's preferred boot – two old pairs of his sold at a charity auction in England this May raised a staggering £58,000. His distinctive white/silver boot has ribbed rubber zones over the five metatarsals, designed to increase grip on the ball and aid swerving it. The extra rubber may have prevented the England captain from



suffering even greater injury to one of his metatarsals - which healed in just a matter of a few weeks instead of a few months.

Nike's Air Zoom Total 90 II has air units built into the sole to protect against stud pressure and is made from a synthetic leather which is lighter than the real thing.

The leather producers, such as Packer in Australia, which specialises in kangaroo skins, and Sadesa, the Argentinean group, have been working assiduously to add extra properties in the hope that players will be able to squeeze out that little bit extra in the way of performance.

Sadesa leather products will star in World Cup 2002 teams' footwear. Just as Latin American players dominate World Cup soccer, so too does Argentina-based Sadesa lead the supply of the soccer footwear market. The company's leather products will be found in the majority of World Cup teams' footwear, including those made by adidas, Nike, Umbro, Puma, Mizuno, etc.

Sadesa has created leather products for the soccer footwear market in a range of price points, offering manufacturers wide choices. At the high end, for the professional player, it developed its breakthrough Ultra Light Technology (ULT), creating an upper material that provides players' with enhanced sense of touch, giving them comfort, control and performance at the highest competitive level. Launched in 1998, it created the first bovine ultra light, high performance leather, competing with kangaroo at a more convenient cost.

"We are proud of the role that our leather plays in the sport of soccer around the world, at the very highest level such as the World Cup and top professional teams, as well as at the school and recreation level," says Andres Galperin, vice president marketing and sales. "Our commitment to innovation to improve the quality

of footwear for soccer players will remain as strong as our passion for the sport."

With headquarters in Buenos Aires, Argentina, Sadesa is one of the largest leather manufacturers in the world, producing 14 million square feet of quality crust and finished leather per month in its ten industrial facilities around the world and employing 2,750 people.

An opportunity and a cost

The World Cup is both an opportunity and a cost, as adidas has found. In the first quarter of 2002, operating profits fell 20.9% to €98 million as World Cup sponsorship expenses, the buyout of adidas Italy and the expansion of the company's network of brand shops all took their toll on the balance sheet. adidas sales meanwhile rose 5.1 percent to €1.638 billion, in line with market predictions, with an 8% increase posted in clothing sales being attributed to strong demand ahead of the World Cup. Asia was the fastest-growing region for the group in 2001. Net sales grew 15% in the region to reach a record €1 billion for the full year versus €875 million in 2000, with big increases coming from adidas Japan, signalling increased momentum associated with this year's World Cup.

Now - where's the TV guide? 📺



Brazil's home and away (centre) kit

Tom Williamson/David Buirski