

# Materials at the 2008 Beijing Olympics

It is widely believed that the pinnacle of technological achievement in the application of advanced composites materials occurred at the 2004 Athens Olympics Games. It is also generally considered that athletes who had access to the latest technology certainly had an advantage over those who did not.

It is in this arena where ACG played its part in Team GB's successes at the Beijing Olympic Games, but particularly in the velodrome, where ACG was responsible for making some of the ultra-light parts on the team's bicycles. In total, Team GB's cyclists stepped up onto the podium to collect 14 medals, 7 of which were gold. This was a remarkable achievement for the athletes themselves and to everyone who supported them during training and at the Games. ACG applauds each and every one of them.

The final total for all disciplines at the Games amounted to an astounding 19 golds, 13 silvers and 15 bronzes, finishing fourth, with China, USA and Russia taking first, second and third respectively in the medal stakes.

Record books indicate that progress made through the development and application of man-made materials has affected the outcome of competition in certain sporting activities, particularly so in cycling, sailing and pole vaulting. In a relatively short time, the world has seen pole vaulters progress through the available technologies, right from traditional bamboo poles to those made from glass fibre and then carbon fibre.

The same is true in the velodrome, where aluminium replaced steel and carbon fibre is now the material of choice. On the water, glass fibre replaced timber and then, once again,

carbon fibre came to the fore. On the water, carbon fibre has been successfully applied to all manner of craft, with masts, outriggers, decks and hulls being manufactured from a range of formulated-for-purpose composite carbon fibre materials, where the resins and fibres are fine tuned to suit the end application - applying technological advancements in pursuit of excellence.

All of this made the seemingly impossible possible in a very short space of time, but it may be that, unless further material developments occur, additional progress may prove to be difficult.

Whilst the capabilities of our athlete's have never been in doubt, technology has allowed them to attain their objectives in reaching new heights, speeds and times. Despite outward thinking that further significant progress may seem impossible, human nature, being what it is, may well seize even minor technological advancements, and shatter records at every turn.

It may be that technology has instilled greater confidence and that this in itself has boosted determination, leading to a heightened competitive spirit and consequent performance improvements.

As has been reported on regional and national television, ACG played its role, directly and indirectly, through its determination to push the boundaries of technology in the pursuit of excellence in all of the markets it serves, including a range of Olympic activities.

An Olympic bike, similar to the one Chris Hoy used in his velodrome success in the Athens 2004 Games, adorns ACG's boardroom and bears witness to the effective application of advancing technologies.

As we know, Hoy returned to the podium in Beijing, but this time with fellow team members. Other recent events, like the 2008 UCI World Track Cycling World Championships, held in Manchester, UK, saw members of GB's team collect an impressive 9 gold medals, some of which can - in part -



Photograph copyright and courtesy of British Cycling ([www.britishcycling.org.uk](http://www.britishcycling.org.uk))



Photograph copyright and courtesy of British Cycling ([www.britishcycling.org.uk](http://www.britishcycling.org.uk))

also be attributed to bikes manufactured from ACG's prepreg composite carbon fibre materials. ACG's MTM<sup>®</sup>28 toughened epoxy carbon fibre prepreg material has been used to make a range of Olympic and World Championship track bikes.

Dimitris Katsanis, Team GB's bike designer, a man who has a long standing association with ACG, knows that the knowledge and experience of the cycling team helped shape the final design. Katsanis commented: "We all sit down in a meeting - me, the coaches and the performance director of British Cycling, where we pinpoint the basic requirements. Then I go away and work on ideas, which - very often - are based upon what the athletes or coaches have come up with."

As the designer of the bikes for British cyclists competing in Athens, Mr. Katsanis said: "the devil was in the detail." Furthermore, "Because of the regulations, you could not go and have something revolutionary. The improvements I had to look for came from careful engineering, design and the use of the latest materials. We looked for a few 1,000ths of a second saving here and there."

It is widely considered that technology has played a vital role in achieving performance targets, but it is - without a shadow of doubt - the athletes who apply this technology on the track, so the lions' share of the praise is heaped on them.

During the Olympics, Steve Barbour, General Manager of ACE at Advanced Composites Group, commented: "Everyone has been glued to the Games, especially the cycling, and it's one of the main topics around here. With the Paralympics now in full swing, we expect it is still top of conversation, and ACG will be keen to know if their materials influence the outcome."

"However, it's not just the raw materials which originate from Derbyshire; British Cycling's performance director, David Brailsford MBE, comes from this region and played a role in the success that culminated in the Cycling Team reaping 14 medals at the Beijing Games." Brailsford is reported to have said, "There is a great vision to be number one in 2012."

ACG manufactures advanced composite materials for a wide range of industries, but its history is steeped in successes across the Formula One fraternity, where virtually all of the teams use ACG's materials.

These materials are now being applied to many other sports and are used for equipment such as tennis racquets, sailing boats (both large and small - from small craft to the huge 'Ericsson 3 and 4' Volvo Ocean Race boats), construction, aerospace, automotive, wind energy, and a myriad of other technologically demanding applications.

And it doesn't stop there! On the contrary, as is customary, the Paralympics follows on from the Olympics, and ACG is pleased to report that Great Britain's Paralympics medallists reaped an amazing 42 golds, 29 silvers, 31 bronzes, finishing second only to China, with the USA running a very close third. Whilst ACG's involvement in this arena is unknown, it certainly plays an important role in the everyday lives of humankind.

ACG has a distinguished record of supplying its carbon prepreg materials for prosthetic limbs. One particular material is ACG's MTM28<sup>®</sup> series carbon fibre prepreps, which are used by Blatchford Ltd for the manufacture of artificial lower limb products.

Blatchford is a world leader in the design and manufacture of advanced, high precision components for artificial lower limbs.



Photograph copyright and courtesy of Blatchford Ltd