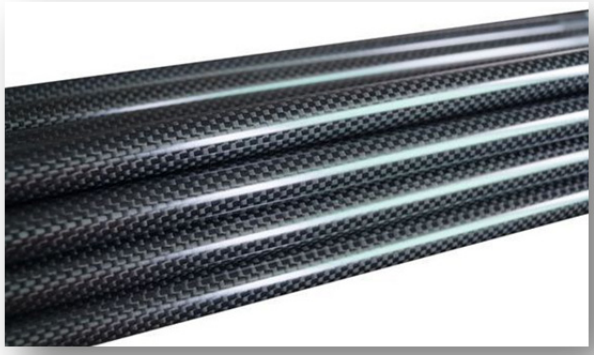
Carbon Fibre

Carbon Fibre is a form of graphite - you might think of them as ribbons of graphite. Bunches of these ribbons like to pack together to form fibres, hence the name Carbon fibres. These carbon fibres are useful for reinforcing other materials to make them tougher. They are embedded in strong plastics to make composite materials.

Many Sports make use of the physical properties of carbon fibre:

- In golf the traditional materials such as steel used in the shaft of the club have been replaced with Carbon fibre producing a strong yet lightweight club.



- Original Tennis rackets used to be made of wood, but since then, metals have lead the way in creating powerful rackets, however due to their weight it was hard for the players to move around. Now carbon fibre tennis rackets are constantly being tweaked to increase power and manoeuvrability, and designers have now turned to carbon fibre as a lightweight alternative to titanium or aluminium.

- Carbon fibre is also used for skateboards, boat hulls and high performance sports equipment.

The composite is very strong and weight for weight it has four times the strength of high-tensile steel.

Carbon fibre can be expensive to produce but is commonly used wherever *high strength-to-weight ratio and rigidity are required, such as aerospace, automotive, civil engineering, sports equipment.

The binding polymer is often a thermoset resin such as epoxy, but other thermoset or thermoplastic polymers, such as polyester or nylon are sometimes used.

The composite may contain other fibres, such as an aramid (e.g. Kevlar), aluminium or glass fibres, as well as carbon fibre. The properties of the final material or composite can also be affected by the type of additives introduced to the binding matrix (the resin).

The specific strength is a material's strength (force per unit area at failure) divided by its density. It is also known as the strength-to-weight ratio or strength/weight ratio.