

Kevlar

Kevlar is a trade name given to a fibre-based material, which is commonly spun into sheets of fabric to produce protective clothing.

It is a very strong artificial fibre and woven to make a material that is used for light and flexible body armour. It is strong and tough because:

- its molecules can pack closely together
- there are chemical bonds between adjacent molecules



Uses

- Stab-proof vest.
- Aerospace industry as a protective lining in jet engines.
- Protective clothing in sport (motorsports).
- Armour plating for use in vehicles.
- Helmets and gloves.

To achieve such a level of protection to make an effective, many sheets of Kevlar are placed in layers.

***Kevlar is simply a super-strong plastic.** Its amazing properties are partly due to its internal structure (how its molecules are naturally arranged in regular, parallel lines) and partly due to the way it's made into fibres that are knitted tightly together.

Kevlar is not like cotton—it's not something anyone can make from the right raw materials.

Did you know?

Synthetic materials are made in a chemical laboratory (unlike natural textiles such as cotton, which grows on plants, and wool, which comes from animals).

Polyamide means the ring-like aromatic molecules connect together to form long chains. These run inside (and parallel to) the fibres of Kevlar a bit like the steel bars in reinforced concrete.

Polymer means that Kevlar is made from many identical molecules bonded together (each one of which is called a monomer).



****Kevlar is a liquid that is converted into a fibre (called aramid fibres) and then woven into a textile material. The resulting textile material is extremely strong, lightweight, corrosion and heat resistant. It is often used in combination with other materials, forming composites.***