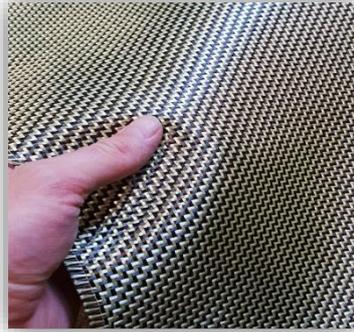


KEVLAR

By Adam Mackinnon-Taipe and Ajay Mahesh

Kevlar is a heat-resistant and strong synthetic fibre, or in simpler terms a super-strong plastic. It is related to other aramids (synthetic fibres) such as Nomex and Technorama. Developed by Stephanie Kwolek at DuPont in 1965, the high-strength material was first used commercially in the early 1970s as a replacement for steel in racing tires.



Properties of Kevlar:

- It's strong but relatively light. The specific tensile strength (stretching or pulling strength) of both Kevlar 29 and Kevlar 49 is over eight times greater than that of steel wire.
- Unlike most plastics it does not melt it's reasonably good at withstanding temperatures and decomposes at about 450°C (850°F).
- Unlike its sister material, Nomex, Kevlar can be ignited but burning usually stops when the heat source is removed.
- At very low temperatures Kevlar shows no effect: DuPont found no embrittlement or degradation happened down to -196°C (-320°F).
- Long exposure to ultraviolet light (in sunlight, for example) causes discoloration and some degradation of the fibres in Kevlar.
- Kevlar can resist attacks from many different chemicals, though long exposure to strong acids or bases will degrade it over time.
- One of the drawbacks is that although it has very high tensile (pulling) strength, it has very poor compressive strength (resistance to squashing or squeezing). That's why Kevlar isn't used instead of steel as a primary building material in things like buildings, bridges, and other structures where compressive forces are common.

Uses Of Kevlar:

Kevlar is be used by itself or as part of a composite material to give added strength. It's best known for its use in bulletproof vests and knife proof body armour, but also has dozens of other applications as well. It's used as reinforcement in car tires, in car brakes, in the strings of archery bows, and in car, boat, and even aircraft bodies.



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Source:

<https://www.fiberbrokers.com/body-armor-disposal/all-about-kevlar/>

<https://www.explainthatstuff.com/kevlar.html>

<https://en.wikipedia.org/wiki/Kevlar>