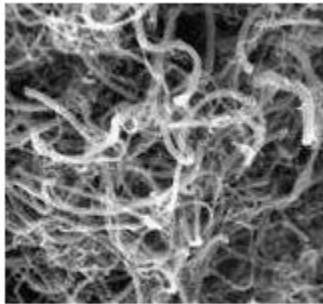


Nanotubes make aluminium nearly as strong as steel

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By adding agglomerations of carbon nanotubes to aluminium using powder metallurgy, it is possible to achieve tensile strength levels that almost match those of steel.

The claim is made by Dr Horst Adams, Vice President at Bayer MaterialScience, which makes 'Baytubes' - agglomerates of multi-wall carbon nanotubes produced in a catalytic process based on chemical vapour deposition.

Dr Adams explained: "Previously, it has only been possible to assign mechanical properties of this kind to aluminium by adding rare and expensive metals in a complex alloying process. In addition to improving strength, nanotubes can also enhance impact strength and thermal conductivity."

The nanotubes have an outer mean diameter of about 13nm and inner mean diameter of about 4nm, yet are more than 1 μ m long. Bulk density is 130 to 150 kg/m³. A pilot plant in Laufenberg, Germany, has been able to produce 60tonnes per year. An additional pilot facility with an annual capacity of 200tonnes is currently under construction at Leverkusen.