



TECHNOLOGY DESCRIPTION

Carbon-fibre-reinforced carbon (CFRC or C/C) is a high-strength composite material consisting of a carbon or graphite matrix and carbon reinforcing fibres. Compared to conventional high-temperature materials, C/C materials are characterised by high performance across a wide spectrum of special properties. These properties enable the implementation of different solutions in the high-temperature range, where conventional materials fail. C/C gained widespread recognition as the material used for the nose cone and leading edges of the Space Shuttle orbiter's wings.



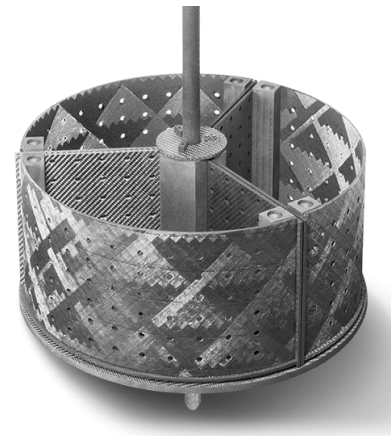
INNOVATIVE ASPECTS

- high damage tolerance, pseudoplastic fracture behaviour
- low density (1.3 – 1.8 g/cm³)
- low thermal expansion coefficient in fiber direction
- no brittleness at high temperatures over the entire lifespan
- high resistance to thermal shock
- very good creep resistance at high temperatures
- good chemical stability
- adjustable electrical and thermal properties, dependent on fiber reinforcement and heat treatment
- over 350°C reaction with oxygen
- usable at temperatures of up to 2,800°C under vacuum or inert gas



TECHNOLOGY READINESS (in space application)

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COUNTRY OF ORIGIN

Germany

LATEST UPDATE

06/2024

TAGS

#carbon

#fibre

#reinforced

#composite

#high temp.

#stable

APPLICATION AREAS

Aviation

Energy

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Electronic
Engineering

Chemical
Engineering &
Biotechnology

Mechanical
Engineering

Space
technologies

Transport &
Logistics

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TECH CARD

