

## FB-CVI for realisation of C-C Composite

Indian Space Research Organisation (ISRO) at Vikram Sarabhai Space Centre has developed Film Boiling Chemical Vapour Infiltration (FB-CVI) technology for realisation of Carbon-Carbon Composite products. Carbon-Carbon composites materials possess excellent thermo-mechanical properties apart from excellent ablation and erosion properties, which are prerequisite for numerous high temperature applications. In addition, Carbon-Carbon Composites possesses ideal characteristics of low density, tailorable thermal conductivity, high heat absorption capacity, dimensional stability at high temperature, tribological properties and biocompatible characteristics making it suitable for a wide spectrum of applications. The process of FB-CVI enables realization of Carbon-Carbon Composite products through a faster process methodology and is adaptable for manufacturing of C-C Composites products for diverse applications.

### Salient Features of Film Boiling CVI process Technology

1. Simplified and Cost-Effective technology for manufacturing Carbon-Carbon Composite products.
2. Faster densification process (2-3 mm/hr) for realization of Carbon-Carbon Composite products.
3. Less parametric sensitive making the process robust and reliable.
4. Flexibility for realization of 2D, 2.5D & 4D C-C composite based products.
5. Realisation of Carbon-Carbon Composite products through a single process cycle.
6. Closed loop circulation of precursor thereby minimizing pollution aspects.

### Applications

Carbon-Carbon Products realized through Film Boiling CVI process can have wide spectrum of applications, considering high thermal shock resistance, capability of retaining mechanical strength at elevated temperatures and other characteristics of the material.