

# NASA TECH BRIEF

## *Ames Research Center*



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### Isotropic Pyrolytic Carbons

**The problem:**

To produce isotropic pyrolytic graphite or carbon without the use of fluidized beds.

**The solution:**

Deposit carbon on a high-temperature substrate that is kept in motion by vibration.

**How it's done:**

Methane or other hydrocarbon gas is passed over a heated bed of high-temperature particles kept in agitation by direct or indirect coupling to an electro-mechanical vibrator or an ultrasonic transducer. The collisions of particles prevent the orderly columnar deposition of pyrolytic graphite; as a result, the deposits are isotropic with respect to many thermal and mechanical properties. Isotropic carbon is especially resistant to thermal shock and spalling.

The frequency of vibration used in this novel method for preparing isotropic carbon may range from subsonic through ultrasonic frequencies, and the substrate temperature may range from the lower

pyrolytic carbon deposition temperatures to the upper pyrolytic graphite deposition temperatures. Moreover, unlike fluidized bed techniques, the substrate can be brought to the deposition temperature by any suitable technique including indirect or direct induction and resistive heating.

**Note:**

No additional information is available. Specific questions, however, may be directed to:

Technology Utilization Officer  
Ames Research Center  
Moffett Field, California 94035  
Reference: B72-10029

**Patent status:**

No patent action is contemplated by NASA.

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