Name of the Technology: **High density graphite**

Summary:
High density graphite is a very special material with high density, high strength and fine micro- structure. It can be used for variety of applications because of its ability to withstand extremely high temperatures while maintaining its strength and shape. Additionally, these products are inexpensive and easy to machine in any shape. In the present technology, graphite samples were developed from coal tar pitch based semi-coke powder without using any extra binder and they exhibited superior properties (given in Table) as compared to those synthetic graphite manufactured from conventional filler and binder process which is subsequently carbonized, impregnated and graphitized.

Properties	Values
Bulk density	>1.8 g/cm^3
Bending strength	>50 MPa
Compressive strength	>100 MPa
Electrical resistivity	<2.0 mΩ-cm
Thermal conductivity	>80 W/mK
Shore hardness	60-80

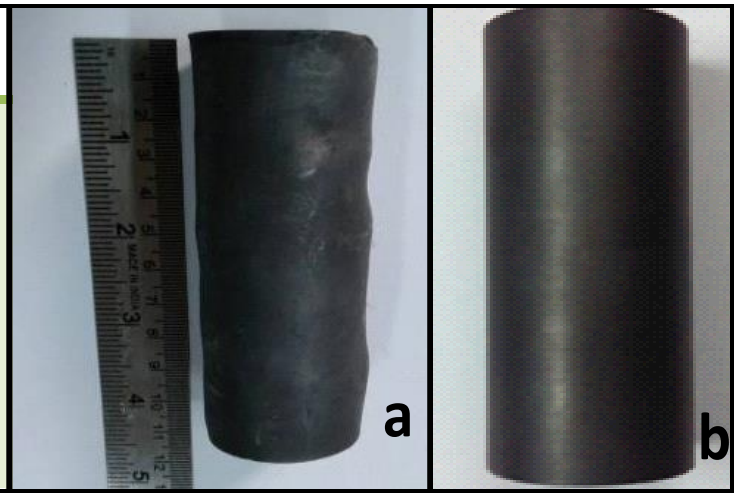

Figure of Cylindrical isotropic high density graphite samples (a) before and (b) after finishing

Applications:
Crucibles and moulds for molten metals and hot pressing dies, collector of travelling wave tube, in nuclear reactors as moderator, reflector and fuel elements, as electrodes and brushes in electric motors and electric discharge machining, for military applications such as nose tip of missiles, thrust pabs and heat shields, etc.

Advantages:

The present technology is an indigenously developed one step, simple and cost effective process for synthesis of high density isotropic graphite using self-sintering semi-coke based carbonaceous material derived from coal tar pitch. Properties of graphite samples are much better in comparison to those prepared from conventional filler and binder method.

Choose the Readiness level of the Technology:

Idea	Concept Definition	Proof of Concept	Prototype	Lab Validation	Technology Development	Technology Demonstration	Technology Integrated	Market Launch

Related Patents:

Patent No: Know how
Country: Nil
Publication Date: nil
Grant Date: Nil
Year of Introduction: 2014-15
Broad Area/Category: Advanced carbon products
User Industries: Steel industry , Electrode industry, Nuclear reactor, Aerospace, etc.