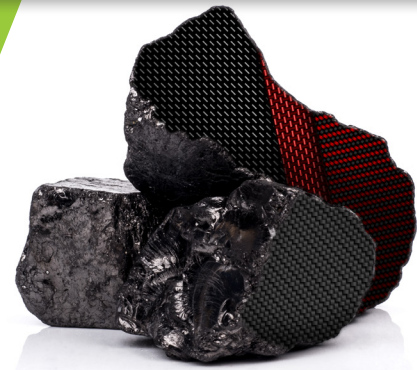


Carbon fibers are strong light-weight materials derived from carbon precursors such as polyacrylonitrile (PAN), Rayon, and coal tar pitch. The unique properties of carbon fibers enables applications in multiple industries including aerospace, marine, energy, sporting goods, and automotive.



ADVANTAGES OF COAL-BASED FIBER

- High carbon content and lower cost of coal tar pitch enables lower cost production
- Ability to produce a range of fibers from short chopped fibers for low-cost applications to graphitizable fibers for demanding aerospace applications
- Elastic modulus, strength, and conductivity can be tailored depending on fiber processing and heat treatment conditions

R&D ACTIVITIES

The program supports development of innovative processes to enhance coal-based carbon fiber properties and production. The current portfolio includes approaches to optimize coal-based precursors and improve critical carbon fiber processes and parameters such as spinnability of coal tar pitch.



CHALLENGES

- ✓ Enhancing coal-based fiber properties by removing natural impurities and optimizing processing conditions
- ✓ Improving manufacturing processes to address variability of source coal, pitch composition, and precise process control requirements

RESULTS AND ACCOMPLISHMENTS

- Innovative technology improves coal-based carbon fiber precursor properties
- Coal-based precursor successfully melt spun on novel pilot equipment enabling control of melt spinning conditions