

Solid Lubrication by Novel Carbon-Derived Materials

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This paper concerns the specific subject of nanotubes, diamonds, and diamondlike carbons for solid lubrication. It reviews studies and observation on the adhesion, friction, wear, and lubrication behavior of these carbon-derived materials and related solid films, emphasizing environmental effects and basic friction and wear properties. The production of carbon nanotubes and related nanocarbons on a large scale, large-area diamond films or sheets designed for engineering materials at low cost, and thick diamondlike carbon films or sheets, a distinct possibility in the not-too-distant future, may drastically change tribology technology. It will soon be possible to take advantage of demanding properties of novel carbon-derived materials to develop a myriad of new applications such as innovative solid lubricants and durable, protective coatings. Nanotubes may create their own revolution in the development of an entirely new branch of solid lubrication.

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Solid lubrication by novel carbon-derived materials. January 2005 • New diamond and frontier carbon technology: an international journal on new diamond, frontier carbon and related materials. K. Miyoshi. S. Takeuchi. M. Suzuki. It reviews studies and observation on the adhesion, friction, wear, and lubrication behavior of these carbon-derived materials and related solid films, emphasizing environmental effects and basic friction and wear properties. The production of carbon nanotubes and related nanocarbons on [Show full abstract] a large scale, large-area diamond films or sheets designed for engineering materials at low cost, and thick diamondlike carbon films or sheets, a distinct possibility in the not-too-distant future, may drastically change tribology technology.