

Recent new applications of hBN

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Boron nitride (BN) is a synthetic material, and they synthesized in different crystalline structures such as hexagonal, cubic. Based on their crystalline structures, they show different physical and chemical properties. Balmain first synthesized BN in 1842; it took until the 1940s before it gained limited economic significance. Looking at past industrial trends, it was not used till 1990s because of the high production cost. Hexagonal boron nitride (hBN) is used in various industries than the other polymorphs. Depending on its structural characteristics, hBN is a good solid lubricant, chemically inert and a very good electrical insulator with high thermal conductivity and good thermal shock resistance. This very versatile material has been utilized in a number of applications (metallization, the metal industry, space industry, cosmetics, the automotive industry, high-temperature furnaces, thermal management, etc.). Recently, hBN nanomaterials (nanoparticles, nanotubes, nanosheets etc.) has attracted attention due to its unique properties in nuclear technology, marine antifouling paint, biological and medical applications, biomarkers and biosensors technologies, and drug delivery systems , implant coating, oral care products as they have no toxic and cytotoxic effect on cells and are biocompatible.