

Nanodiamond Composite Films for Abrasion Resistant Applications

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Practical applications of diamond coatings are used to introduce nanodiamond films as viable improvement to current technologies in areas of abrasion resistance such as brakes. The structure and composition of these films is discussed. Previous research in aqueous and non-aqueous methods of creating high concentration stable NDP suspensions of up to nearly 10% by weight for thermo-cured films are used to demonstrate current status in nanodiamond film research. Finally, a new method using polyacrylonitrile electrospinning to create versatile nanodiamond composite films is reviewed. This new method has been proven to yield films of up to 80% wt NDP is successful in both uniform film creation as well as holding promise for a wide variety of alternative uses.