**ABSTRACT**

The demanding industrial requirements for newer materials enhanced with mechanical properties like hardness, toughness, wear and impact resistance for different applications have made researchers focus on the synthesis of new composite materials. Composite materials are formed by combining two or more materials so as to obtain a new material which has unique/enhanced properties, that is not possible with the individual constituents. Metal Matrix Composites is one of the major classes of composite materials, wherein a metallic material is reinforced with ceramic whiskers or particulates. A metal matrix composite, reinforced with more than one reinforcement is termed as hybrid composite. The distinctive and enhanced properties of the hybrid composites has created a lot of interest, resulting in wide applications of these materials in automotive and aerospace industries.

Composite materials consist of a matrix which is the continuous phase. This continuous phase surrounds a discontinuous phase called the reinforcement. The reinforcement may be in the form of particulates, chopped fibres, whiskers and in-situ dispersion. Some of the reinforcing materials used in composite materials are hard ceramics like nitrides, oxides, carbides and borides .Many times, a soft phase such as graphite is added along with hard reinforcements. Normally graphite is added to enhance the self-lubricating capacity of the composites. This is because some applications require periodic lubrication. Graphite reduces friction between the work piece and the tool and also between the chip interface and the work. This improves machinability. Aluminium alloy in many cases is reinforced with hard particles like Silicon Carbide (SiCp) or alumina (Al203) to modify its wear behavior.