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Alumina is one of the hardest substances present today and is made of a crystalline material that is white in color. It can be diced and is available in three forms depending on its purity. Machining alumina depends on the kind of alumina and there are three types of it- 99.6% alumina, the hardest and purest, which is mostly used for manufacturing microwave circuits with great finish, the 96% and 92% in which the filler content is much higher and a diamond saw can easily cut these two types of alumina. These are used in packaging applications containing a built up of conductive and ceramic layers and in thick filmed fire circuits.

alumina machining is possible with the help of techniques used in diamond grinding. Coolant is an important factor in the machining and together it can be sawn, milled and drilled easily. Unsupported edges can also be chipped by controlling the feed. This substance is processed and machined to be used in photonic and electronic industries and is available in different thicknesses and sizes. Polishing alumina depends on the production technique that has been used and the grain of the alumina can be extruded, and pressed though it is highly suited for metalizing as the grain structure is large.

A few qualities that are possessed by alumina are being completely gas tight, mechanical strength and high resistance to chemicals. They are also excellent electric insulators and are used in removing water out of gases and liquids. Aluminaâ€™s strength can be further improved by adding the particles of zirconia and silicon carbide, making the substance appropriate for being used in tools specifically used in industrial cutting. Diamond tools used with high speed and a coolant as a catalyst make the machining of this very hard substance but relatively easier.

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