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# Aluminium Industry

The production of Aluminium, from its basic raw material, requires a huge amount of energy and, in many parts of the cycle, graphite and carbon materials. The ore, Bauxite, is reduced to Alumina that is fed into large vessels known "pots" where it is mixed with a number of different salts and subjected to an electrical current. The anodes and cathodes used to form the electrical circuit are made from carbonaceous materials, actually in much the same way as graphite blocks are produced. The resulting molten Aluminium is transferred to furnaces for alloy treatment prior to casting. In its molten state, Aluminium, is readily oxidised by the atmosphere resulting in Hydrogen being dissolved into the melt. If this is not removed before casting then the castings will exhibit porosity and oxide inclusions leading to lower mechanical properties and ultimately, component failure. The process of removing these impurities is made possible by the use of spinning rotor technology with parts made from Graphite. Tokai Carbon has an anti-oxidation treated Graphite that is ideally suited for this application. When the molten metal is clean and gas free then it is cast into a suitable form by a process known as DC (Direct Chill) casting. The mould that produces the shape uses Graphite inserts that aids and controls the solidification rate of the casting. Tokai Carbon has a range of Isotropic Graphite grades suitable for the application.

