

Electrical Products—Calcium Carbide. 229

The process of manufacturing calcium carbide is as follows: Ordinary lime before it is slacked is ground to a fine powder; then it is mixed with powdered coke or carbon in the proper quantities, so that when a chemical union takes place the proportion will be as before stated, one atom of calcium to two of carbon. As is well known, lime is procured by exposing ordinary limestone to a red heat for some hours together. The heat disengages the carbon dioxide, leaving only a combination of calcium and oxygen, which is common lime.

The mixture of ground lime and coke is put into a crucible that surrounds the arc of an electric light of enormous dimensions; the carbon conductors amounting to an area of one square foot or more. In order to cause the carbon to unite with the calcium a very intense heat is required, such a heat as can be obtained only in the arc of an electric light. When the enormous current is turned on (amounting to over 3000 horse-power) the mixture is melted, and after an exposure to this intense heat for a given length of time the oxygen of the unslacked lime is thrown off and the carbon unites with the calcium, which remains in the proportions of one atom of calcium to two of carbon, as before stated. This, it will be noted, is purely a heat process, and an intense one at that. No electrolytic action being required, the alternating current is used without trans-