Anode baking is the most expensive step in the carbon anode manufacture. Therefore, management is focusing on this process step to reduce cost. As the anode quality is greatly determined by the baking process, cost saving results often in an undesired loss of anode quality. Such substandard anodes represent significant costs for the smelter operation and should be avoided by all means.

Optimized furnace operation shall achieve the highest furnace output, the best achievable anode quality, lowest energy consumption, minimized emission level and smallest possible workload. However, in reality furnaces are often suffering from various problems and obstructions which cause considerable costs.

During the last 30 years R&D Carbon developed and installed firing control systems in 33 furnaces with more than 80 fires. Today, however, we refrain from supplying firing control systems. Instead we are focusing in the area of anode bake furnace on research and development, audits and optimizations. Our worldwide activities on furnaces of any design and any control system allows us to improve substantially the furnace operation and the anode quality. As a consequence R&D Carbon contributes substantially to reducing metal production costs and to lowering capital investment for production plants.

Please refer also to Plant Audit of Anode Production and Performance and List of installed bake furnace firing systems

Bake furnace operation and achieved anode quality are strongly interlinked with the furnace design and in particular the pit and flue design. In the last years R&D Carbon carried out many studies and research of designing and dimensioning anode bake furnaces. Always with the aim to optimize the furnace design regarding the cost impact, achieved anode quality, reducing emission and operational behavior.

Please refer also to Technology Development