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# Semiconductors

The introduction of semiconductor “chips” into everyday appliances is largely taken for granted, however, it would not be possible to produce them without graphite and carbon materials. Nearly all these chips are produced from Silicon but some specialised applications are made from compound semiconductors, although the production cycle is very similar for both types.

The production cycle of a “silicon chip” begins in the same way as for a solar cell wafer by producing hyper pure silicon in CVD reactors and then casting this hyper pure silicon into ingots. The furnaces used for casting are lined with carbon products while the crucible containing the melt is contained within a Graphite or CC crucible or susceptor. The unique properties of these carbon products make them ideal for this application as they can withstand the harsh environment and high temperatures needed for the process.

Following ingot casting and slicing, the wafers are subjected to a number of other processes to produce the final part. These include epitaxy, CVD coating, Ion implantation and dry etching. Tokai Carbon has some specialise products for these processes including SiC coated Graphite, Solid SiC and Glassy Carbon.

