

Pyrophosphoric Acid Coating for Antioxidation of Graphite Surface

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This study presented the development of antioxidation process on graphite surface with comparing phosphoric acid and pyrophosphoric acid. Graphite has a serious drawback of the poor oxidation resistance in high-temperature for actual use. To solve this problem, phosphoric acid and pyrophosphoric acid were adapted for antioxidation coating materials. The antioxidation ability of phosphoric acid or pyrophosphoric acid coated graphite was evaluated as a function of number of coating time, heat treatment time, and concentration. Also the samples were compared with uncoated samples. The characterization was performed by SEM, TGA, FT-IR and BET. The results showed the antioxidation ability of pyrophosphoric acid coated graphite is much better than the phosphoric acid. The pyrophosphoric acid coating process gave the enhanced oxidation resistance upto 1300°C.