Carbolite(R) technology

A cost-effective technology for industrial waste management

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A recent and novel technology processes fine materials from industrial plants and other kinds of fine materials into hard pellets. These pellets can be produced within defined tolerances, and typically find application for the same purpose as the primary material from which the fines originated. Four full-scale plants processing coal fly ash with comparable, proprietary process equipment are currently in operation worldwide.

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Introduction

The disposal of fine grades of coal, metal ores and other materials has received considerable attention in recent years as environmental legislation has grown increasingly restrictive. Significant increases in mining automation and mechanized mining techniques are held to be responsible for growing quantities of fines with limited marketability.

A novel technology, called Carbolite(R) Technology, has recently been developed jointly by AECI Operations Services (Pty) Ltd (AOS) in South Africa and Hoogovens Technical Services Europe B.V. (HTS E) in the Netherlands. This process converts fine materials such as coal fines, coke breeze, coal gasification residues, fine ores, filter dust from industrial plants and other kinds of fine materials into hard pellets, which can be produced, within defined tolerances in the size range of 3 to 80 mm suitable for further processing.

The Carbolite technology has been derived from the Aardelite(R) technology, a method for processing fly ash from coal-fired power plants into lightweight aggregate. The Aardelite aggregate is used as a substitute for natural gravel in the production of concrete products. Here we have a solution for the growing fly ash production in the world, while simultaneously limiting excavation of valuable non-renewable raw materials. Four Aardelite production plants, with annual production capacities varying from 200,000 to 350,000 tonnes aggregate, have been constructed to date. One of these is in Mumbai, India.

The Carbolite technology was initially developed to agglomerate ultrafine carbon-rich gasification residues for application in the metallurgical industry, a process that had proven to be uneconomical by conventional processing methods. Besides the inability of traditional techniques to achieve the required physical properties, the most significant