

Beneficiation and processing of kaolin

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Kaolin is one of the most versatile industrial minerals, but kaolin in its natural crude form has very limited applications or uses. This is because other than kaolin there are other ancillary minerals which are considered as contaminants. Some of the more common minerals are titaniferous minerals, haematite, goethite, mica and quartz. These minerals need to be removed or the percentage greatly reduced before the properties of the kaolin more suited for the various applications. Kaolin is mainly used in the paper industry which is the largest user. Kaolin is also used in the ceramics and refractories, in the paints, rubber, plastics and chemical industries.

In order to achieve the specified properties kaolin needs to undergo several stages of processing to remove the above mentioned ancillary minerals. Kaolin can be processed through the dry method as well as the wet method. The dry method is normally effectuated for the low grade kaolin which does not require secondary down-stream processing. The wet method is more complex and the crude has to undergo many processes. The cost of processing by the wet method is higher than the dry method but the products are of better properties and qualities. Among the processes involved in refining the kaolin are: fractionation, delamination, flotation, flocculation, magnetic separation and oxidation bleaching.

The processing technology had been developed and is continually developed to improve the quality of kaolin and also to satisfy the specifications of the market. The problem of kaolin processing is not on the technology but rather the economics of the processes that is related to the grade of the crude kaolin and the end product specifications.
