

Characterization of High Carbon Ash from Pulp and Paper mill for Potential Utilization

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Abstract : Fly ash collected from Cachar Paper Mill, Assam, India has been thoroughly characterized in respect of its physico-chemical, morphological and mineralogical features were concerned by using density, LOI, FTIR, XRD, SEM-EDS etc. The results reveal that there is a striking difference in the features and properties of the coarser and finer fractions. The high carbon ash consists of large unburnt carbon (chars), irregular carbonaceous particles in the coarser fraction, which appear to be porous and may be used as domestic fuel. The percentage of char albeit the carbon content decreases with decrease in size of particles. The various fractions essentially contain quartz and mullite as the main mineral phases. For suggesting the potential utilization channels, number of experiments were performed correlating the total characteristic features. Water holding capacities of different size classified fractions were determined, the coarser fractions have unexpectedly higher water holding capacities than the finer ones. An attempt has been made to correlate the results obtained with potential use in agriculture. Another potential application of coarser particles is used as adsorbent for effluents containing waste organic materials. Thus thorough characterization leads to not only a definite direction about the uses of the value added components but also gives useful information regarding the prevailing combustion process.

Keywords : chars, porous, water holding capacity, combustion process

Conference Title : ICWMEE 2014 : International Conference on Waste Management and Environmental Engineering

Conference Location : Bangkok, Thailand

Conference Dates : December 18-19, 2014