

## Chemically enhanced filtration and dewatering effect of fine coal slurry based on particle characteristics

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An experimental study of chemically enhanced filtration and dewatering of fine coal slurry with and without additives was carried out. The experiment involved determination of effect of slurry concentration, additives (cationic, anionic and nonionic), filter area, filtration velocity, particle size and cake resistance on dewatering and filtration using vacuum filtration cell. Finally, the rate of filtration and dewatering and optimum amount of additives used were determined under suitable filtration condition. Overall, it was found that the filtration and dewatering characteristics were enhanced by increased slurry concentration, larger filter area and larger particle size. In addition of additives, the kerosene was found to be best for enhancing the filtration which yielded cake moisture reductions of approximately 17% by weight. At optimum dosages, the final cake moisture contents were reduced by 3.6% and 5.8% by weight using the appropriate surfactant and flocculant, respectively.