

Title: Effect of different ions present in fresh water on stability and sizing performance of ASA emulsion stabilized by vinylamine particles.

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Sizing is the process to provide the hydrophobicity to paper. Alkenyl succinic anhydride (ASA) is an alkaline sizing agent and reacts with cellulosic fiber quickly and provides resistance to liquid absorption when applied during papermaking. ASA emulsified in conventionally used cationic starch (CS) solution, has low shelf life i.e. 20-25 minutes and forms stickies/ deposits as a result of hydrolyzed ASA on wire part of paper machine. Literature supports the use of different stabilizers as an alternate to CS for ASA emulsification in which polyvinylamine (PVAm) is one of the stabilizers that has been evaluated in a laboratory environment for preparation of ASA emulsion, using de-ionized water, in different ASA to PVAM ratios. It has also been reported that stability of ASA emulsion can be improved by using PVAm as stabilizer which seems to provide a protective shield to the exposed area of the ASA particles, and thus functions as a stearic barrier against aggregation thereby reducing hydrolysis. In that case, the ASA emulsion was found to be stable for up to four hours. In our knowledge no reliable studies have been done on use of fresh water in preparation of ASA emulsion, in order to utilize the ASA emulsion prepared by using PVAm commercially. The present invention relates to the study of using fresh water for the preparation of ASA emulsion using PVAm as stabilizer and effect of different ions viz. Ca^{2+}, Mg^{2+}, Cl^{-} and SO_4 ions present in fresh water on the stability and performance of ASA emulsion.

Biography

Ashish Kumar has completed his B. tech (chemical engineering) from Kurukshetra University-Kurukshetra, India and M. tech. (paper technology) from Indian Institute of Technology–Roorkee, India. He is persuing Ph.D. (paper technology) from the same institute i.e. Indian Institute of Technology–Roorkee. He has 11 years of research experience as research engineer in Avantha center for industrial R&D, India and 2 years as research fellow from Central Pulp and Paper Research Institute, India. He has published more than 11 papers in reputed journals and filed two patents in Indian Patent Office.

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