

# Study of Alum- Polyacrylamide Grafted Starch (St- g- PAM) based Composite Treatment of Water /Waste Water

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**Abstract**—Alum and other inorganic salts have been in use for water treatment for decades. The consequent exposures to the metal ions have many chronic effects such as Alzheimer's disease. Safer alternative involves use of graft copolymers as flocculant, which are required in low dosage and are nontoxic, but have much lower efficacy and floc settling rate. In the work described here, the flocculation efficacy of polyacrylamide grafted starch (St- g- PAM) has been compared and synergized with coagulation efficacy of alum. The aim was to minimize alum dosage (hence  $Al^{3+}$  exposure) and maximize water treatment efficiency. Thus, coagulation – flocculation composite system was designed and studied, which combines the advantages of both.