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Preparation, Characterization and Swelling Properties of SuperabsorbentComposite Based on Guar Gum

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Abstract: In this work, cross-linked superabsorbent composite has been synthesized using guar gum and methyl methacrylate by graft copolymerization reaction in presence of potassium per sulphate (KPS) as an initiator and boric acid as cross linking agent in complete aqueous solution.FTIR analysis was carried out to confirm chemical structure of composite and SEM was used for morphological study. The composite was also characterized by XRD to study its crystalline nature. The water absorption capacity of superabsorbent was measured by free swelling method as a function of percentage swelling. The effect of reaction parameters such as guar gum concentration, monomer concentration, initiator concentration, cross-linker concentration and pHon swelling was investigated to achieve superabsorbent with improved water absorbency.Under the optimized conditions, maximum capacity of swelling in distilled water was found to be 3650%. The swelling behaviour of composite was also investigated in various saline solutions.

Keywords: Guar gum, percentage swelling, composite, potassium persulphate, superabsorbent.

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