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Title: Preparation and Properties of Organic-Inorganic Composite Superabsorbent Based on Xanthan Gum and Loess

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Preparation and Properties of Organic-Inorganic Composite

Superabsorbent Based on Xanthan Gum and Loess

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ABSTRACT: a new, low-cost, and eco-friendly organic-inorganic composite superabsorbent was successfully synthesized in aqueous solution by polymerization xanthan gum (XG), neutralized acrylic acid (AA) and loess using ammonium persulfate (APS) as initiator and N,N-methylenebisacrylamide (MBA) as crosslinker. Structure and morphological characterizations of the composite superabsorbent were investigated by Fourier-transform infrared spectroscopy (FTIR) and scanning electron microscopy (SEM). The loess content, pH values, surfactants, salts and temperature which could affect the swelling and water-retention capabilities of the composite superabsorbent were investigated. The composite superabsorbent exhibits excellent water absorbency (610 g/g in distilled water), pH-stability (pH 5–10), and higher swelling capacity in anionic surfactant solution, on the other hand, the composite superabsorbent can be used for removing multivalent metal ions.

Keywords: xanthan gum; loess; composite superabsorbent; water absorbency; swelling-deswelling

1. Introduction

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