Organoclay building blocks as a soil-flushing agent from artificially heavy metal contaminated soil

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We demonstrated for the first time that water-soluble aminopropyl magnesium functionalized phyllosilicate could be used as a soil-flushing agent for heavy metal contaminated soils. Heavy metals have been known to adversely affect health, which has instigated the need to remediate heavy metal contaminated soils. Many efforts, such as excavation and landfill, isolation, containment, electrokinetics (EK), biological treatment, and soil-flushing methods have been widely researched. More than other methods, soil flushing has been an attractive means to remediate heavy metal contamination because it has been less disruptive to the soil environment after the treatment was performed. As a result, the development of efficient and non-toxic soil-flushing agents has been required. We have synthesized aminoclays with three different central metal ions such as magnesium,aluminum, and ferric clays. Magnesium (Mg)-centered aminoclay showed the smallest size distribution and superior water solubility. Based on the results, we measured the metal binding capacity with Mg aminoclayand applied for soil flushing.