

Mg-Fe-MMH-钠质蒙脱土分散体系的触变性研究

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摘要 触变性是分散体系一种复杂的流变学性质, 指流变性质随剪切时间而发生变化的现象。以往研究过程中, 先后发现了切稀现象和切稠现象, 即正触变性和负触变性。最近, 我们又发现了复合触变性, 即一个体系可先后呈现正触变性和负触变性特征。研究了Mg-Fe型混合金属氢氧化物(简称MMH)-钠质蒙脱土(简称MT)分散体系的触变性, 发现在不同MMH/MT质量比条件下, 可分别呈现正触变性、负触变性, 另外还观察到了复合触变性。在所研究的MMH/MT质量比范围(0~0.5)内, 随MMH/MT质量比增大, 体系的触变性发生负触变性-正触变性-复合触变性-负触变性的转化。考察了电解质NaCl对触变性的影响, 发现不改变触变性的类型。探讨了各种触变性产生的原因, 提出了“分散粒子-空间连续网络结构-密实聚集体”机理, 较合理地解释了观察到的复合触变现象。

关键词 [镁](#) [铁](#) [锰脱土](#) [触变性](#) [流变性能](#) [氢氧化物](#)

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Study on the thixotropy of magnesium ferric hydroxide ---- montmorillonite suspension

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Abstract The thixotropy of suspension, the rheological properties change with the shear time, is a complicated rheological phenomenon. The shear-thinning and the shear-thickening phenomena, i. e., positive thixotropy and negative thixotropy, respectively were observed in the previous studies. Recently we found a novel thixotropic phenomenon, described as "complex thixotropy", during studying the thixotropic phenomenon of magnesium aluminum hydroxide-montmorillonite suspension. In this paper, the study of thixotropy of the aqueous suspension consisting of magnesium ferric hydroxide (Mg-Fe-MMH) possessing permanent positive charges and na-montmorillonite (MT) possessing permanent negative charges is reported. The suspensions studied may display positive thixotropy or negative thixotropy, depending on the Mg-Fe-MMH/MT ratios. The complex phenomenon is also observed. In the range of Mg-Fe-MMH/MT ratio 0~0.5 examined in this work, with increasing the Mg-Fe-MMH/MT ratio, the thixotropy of suspension changes from negative passing through positive, complex, then back to negative again. The effect of electrolyte NaCl on the thixotropy of the suspension was investigated, which showed that in the studied range of 0~0.10 mol/L of NaCl concentration the thixotropic type of the suspension did not change. The mechanism of the thixotropy is discussed and the change process of "dispersed particles-steric continuous net-work structures over the whole system-densed floc units" is purposed to explain the complex thixotropic phenomenon observed.

Key words [MAGNESIUM](#) [IRON](#) [THIXOTROPY](#) [RHEOLOGICAL PROPERTY](#) [HYDROXIDE](#)

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