

论文

硫酸钡混悬剂的反絮凝研究

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摘要:

测定了硫酸钡不同工艺制成品的粒度分布。证明北京三厂中间产品(湿膏)本来粒度很细有97%是在4μm以下,但烘干后成品粒度变粗,80μm以上的粒子占62%。这对造影效果会产生重要影响。喷雾干燥产品的粒度分布与原湿膏基本相同。用电泳法测定了硫酸钡混悬剂的动电位,确定硫酸钡是荷负电的。混悬剂的动电位在22mv以下可产生絮凝,适合于反絮凝的动电位是在50~66mv之间。电解质中六偏磷酸钠、焦磷酸钠和柠檬酸钠的反絮凝效力是按上列顺序减低的。例如配制100%硫酸钡混悬液三种电解质最适宜的浓度分别为5×10<sup>-3</sup>M、2×10<sup>-2</sup>M和3×10<sup>-2</sup>M。本文用粘度分析法研究了混悬液的絮凝反絮凝过程,所得结果与动电位和沉降容积的结果基本吻合,惟粘度法方便迅速并能反映出细小的变化,可用数字和曲线作鲜明的对比。但此法要求颗粒要细(10μm以下)否则会发生机械性阻碍无法测定。

关键词:

STUDIES ON THE DEFLOCCULATION OF BARIUM SULFATE SUSPENSIONS

Dai Di; Wang Liequn; Wang Xiuwen; He Yuying and Wang Hongchen

Abstract:

Deflocculation state was considered to be necessary for better fluidity and spreadability of barium sulfate suspension taken as an X-ray contrast medium in the examination of gastro-intestinal tract. The Zeta-potential of the barium sulfate particles in increasing concentration of different electrolytes was measured by the electrophoretic method in a Burton Cell. The results were compared with the corresponding sedimentation volume. It was found that the Zeta-potential ranging from 50 mV to 66 mV favored the deflocculation of the suspension, while that below 22 mV, flocculation was affected. The viscosities of 100%, 130% and 150% barium sulfate suspensions were measured using Hoppler's Rheoviscometer. The viscosity dropped quickly at first on the addition of electrolytes, and then increased to some extent with further increase of electrolyte concentration. The minimum viscosity was considered to reflect complete deflocculation of the suspending particles. The electrolyte concentration producing minimum viscosity was shown to be the most effective deflocculating agent tested, while sodium pyrophosphate and sodium citrate are less effective. The flocculation of the barium suspension by the gastric fluid after ingestion often leads to some troubles to the roentgenologists. We examined the ability of different electrolytes to retard such flocculation by means of the viscosity method.

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