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高庙子钙基膨润土的膨胀特性

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Swelling Characteristics of Gaomiaozi Ca-Bentonite

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摘要 对高庙子钙基膨润土进行了膨胀变形试验、膨胀力试验及湿陷试验, 研究了其膨胀特性及湿陷特性. 试验结果表明: 膨胀力随初始干密度的增加而增大, 且膨胀力的对数与初始干密度大致呈线性关系; 浸水引起的膨胀应变随着竖向应力、初始含水量的增大而减小, 且随着初始干密度的增加而增大; 膨胀速率随初始干密度的增加而增大,随竖向应力、初始含水量的增大而减小; 在相同竖向应力下, 3 种试验方法得到的浸水饱和稳定后的孔隙比大致相同, 在双对数坐标下, 孔隙比与竖向应力呈线性关系.

关键词: 高庙子钙基膨润土 膨胀力 膨胀变形 膨胀速率 湿陷

Abstract: The swelling and collapse characteristics of compacted Gaomiaozi Ca-bentonite are studied by conducting a series of swelling deformation tests, swelling pressure tests and collapse tests. It is found that the swelling pressure increases with the increase of the initial dry density. There is a linear relation between them in semi-logarithmic scales. The swelling strain due to wetting decreases with the increase of the vertical stress or initial water content, but increases with the increase of the initial dry density. The swelling rate increases with the increase of the initial dry density, but decreases with the increase of the vertical stress or initial water content. The void ratios at full saturation by three different testing methods are almost the same for the same vertical stress. There is a linear relation between the void ratio at full saturation and the vertical stress in logarithmic scales.

Keywords: Gaomiaozi Ca-bentonite, swelling pressure, swelling deformation, swelling rate, collapse

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