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复杂岩层钻孔灌注桩泥浆选型试验研究

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摘 要：将聚丙烯酰胺(PAM)和部分水解聚丙烯酰胺(HPAM)作为絮凝剂、防塌剂、增黏剂和堵水剂，用于大直径钻孔灌注桩施工。在吸附试验中，在固液比为150:、温度为(20±0.2) ℃时，采用淀粉-碘化镉比色法，根据PAM (或HPAM)标准曲线，测量其吸附平衡后的离心液浓度，由吸附前后的PAM(或HPAM)浓度计算每克黏土的吸附量。试验结果表明：黏土颗粒随着溶液中钠离子浓度的增加，吸附HPAM的含量也增加；随着溶液pH值、水解度和温度的增加，吸附HPAM含量降低；聚丙稀酰胺的技术参数确定为：阴离子型，相对分子质量为 (3.0~5.0)×10^8，水解度为30%~50%；在施工中，使用该配方调制的泥浆，能有效地防止黏卡事故的发生，成孔率显著提高。

关键字：钻孔灌注桩；泥浆；选型试验

Mud selection test of drill-pouring pile in complex rock

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Abstract: Polyacrylamide (PAM) and partially hydrolyzed polyacrylamide (HPAM) were used in construction of large diameter bored piles as flocculant, anti-sloughing agent, tackifier and the blocking agent. In the adsorption experiment, the ratio of solid to liquid was 150:, temperature was (20±0.2) ℃, a cadmium iodide starch assay was used according to PAM (or HPAM) standard curve, and the adsorption equilibrium of centrifugal concentration was measured before and after adsorption of PAM (or HPAM) and the concentration of adsorption per gram of clay. The results show that clay particles increase with the increase of concentration of sodium in solution, and adsorption of HPAM also increases. With the increase of pH value, temperature and degree of hydrolysis, the contents of HPAM reduces. The technical parameters of polyacrylamide defined are as follows: anionic type, relative molecular mass (3.0-5.0)×10^8, the degree of hydrolysis of 30%-50%. Using the formula modulation mud can effectively prevent the occurrence of sticky cards, and hole increases significantly.

Key words:drill-pouring pile; mud; selection test

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