

Research on the Preparation Technology of Pressureless Steamed PHC Piles

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Abstract

Pre-stressed high-strength concrete (PHC) pipe piles, with their excellent performance and continuous innovation in manufacturing technology, have become an indispensable material in numerous engineering projects. They have attracted widespread attention from scholars at home and abroad. As research into pressureless steaming production technology continues to deepen, PHC pipe piles have achieved remarkable results. This paper provides a detailed analysis of four aspects: the impact of different high-reactivity admixtures and their proportions on the mechanical properties of pre-stressed high-strength concrete; the types and amounts of high-efficiency water reducers to improve fluidity and pumpability; further analysis of the optimized combination of high-reactivity admixtures and high-efficiency water reducers, demonstrating the synergistic effect that can further enhance the overall performance of the pipe piles; and the application of nano-microsphere and ultrafine powder composite technology. These analyses offer references and insights for the continuous innovation and development of PHC pipe piles.

Keywords

Pressureless Steaming, PHC Pipe Piles, High-reactivity Admixtures, High-performance Water-reducing Admixtures, Nano Microspheres