4. Infilling Air Mortar Enabling Long Distance Grouting and Narrow Space Filling - Basic Performance of Infilling Mortar Suitable for Filling Annular Space around Steel Pipe in Gas Pipeline Construction –

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Newly developed infilling air mortar is used to lay a gas pipeline of outside diameter 900 mm in a 500-meter-long tunnel of inside diameter 1,100 mm. The infilling air mortar was developed with the aim of filling the annular space between the tunnel and the gas pipe in one grouting operation. To meet the performance requirements for the infilling mortar, mix design screening tests, filling performance tests and post-grouting performance verification tests were conducted. As a result, the infilling mortar left to stand for seven hours, which is the time required for grouting operation, and the infilling mortar made to flow over a distance of 500 m showed excellent fluidity and filling performance without developing segregation. After hardening, the mortar showed excellent compressive strength and air permeability characteristics.

Key words: gas pipeline, infilling mortar, air mortar, high fluidity, non- separation