ABSTRACT (INGGRIS)

TESTING COMPRESSIVE STRENGTH OF CONCRETE WITH QUALITY K-300 USING MASTERLIFE SF-100 MIX: PERFOMANCE AND QUALITY ANALYSIS

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ABSTRACT

The increasing demand for concrete in the construction sector encourages innovation in improving material quality and durability. One approach used is the addition of admixtures such as silica fume, in the form of Masterlife SF-100, which is known to enhance compressive strength and improve the microstructure of concrete. This study aims to analyze the effect of Masterlife SF-100 on the compressive strength and porosity of concrete. The research methodology involed the preparation of cube test specimen with Masterlife SF-100 additions of 0%,8%,10%, and 12% by weight of cement. The concrete curing process utilized two types of water: sea water and fresh water. Testing was can conducted at 28 days following the SNI standard procedures. The results showed that addition of Masterlife SF-100 generally increased the compressive strength to 30,2 Mpa or by approximately 29% compared to normal concrete (23,4 MPa). However, at the 12% variation, the compressive strength slinghtly decreased to 29, Mpa, while still reducing the porosity level. The optimal composition was found to be in the range of 10-12%. Fresh water curing produced compressive strength values compared the sea water. This study concludes that Masterlife SF-100 is effective in improving concrete strength and reducing its porosity.

Keywords: *Concrete, silica fume, Masterlife SF-100, Compressive strength, Porosity, Sea water, Fresh water*