

## **ABSTRACT**

*In the development of the construction, the concrete technology is required to produce concrete that has high quality without neglecting the economic value. Charcoal ash that has not been maximized in its utilization and has silica content as an aggregate binder, is expected to minimize the use of cement in concrete mixes and Sika Viscocrete 1003 to facilitate concrete work so that the use of charcoal ash and Sika Viscocrete-1003 can improve the ease of work or workability on concrete mixes. The study the addition of charcoal as a substitute of cement with variations of content 0%, 6%, 8%, and 10% and the addition of Sika Viscocrete-1003 of 0.6% of the weight of cement for each variants.*

*The test was performed to determine the value of slump, the weight of concrete, the value of concrete compressive strength, and the modulus of elasticity of concrete with the addition of charcoal and Sika Viscocrete-1003. The calculation of mixed concrete planning using the rules of calculation of normal concrete mix (SNI 03-2834-2002) with compressive strength concrete plan was 25 MPa. Concrete testing is performed when the concrete sample are aged at 14 days and 28 days.*

*The results showed that the addition of charcoal as a partial replacement of cement and Sika Viscocrete-1003 can increase the compressive strength of concrete with high slump. The results of concrete compressive strength test of 14 days from normal concrete and concrete charcoal variations from 0% to 10% and Sika Viscocrete-1003 0.6% were 25,8 MPa; 32,876 MPa; 25,929 MPa; 33,103 MPa; and 30,385 MPa.. The compressive strength test of 28 days from normal concrete and concrete of ash charcoal from 0% to 10% and Sika Viscocrete-1003 0,6% were 30,953 MPa; 41,613 MPa; 34,493 MPa; 36,954 MPa; and 34.871 MPa.*

**Keywords:** Concrete, Ash Charcoal, Viscocrete, Compressive Strength, Modulus of Elasticity