

# THE ANALYSIS OF THE UTILIZATION OF STEEL SLAG AND SUPERPLASTICIZER ADDITION TO THE COMPRESSIVE STRENGTH AND PERMEABILITY OF PERVIOUS CONCRETE

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## ABSTRACT

*The aims of this research are to investigate: (1) compressive strength, (2) permeability, and (3) the best variation with the addition of steel slag and superplasticizer on porous concrete. This experimental research consisted of dependent, independent, and controlled variables. The independent variables as follow: percentage of addition of steel slag as partial substitute of gravel as much as 0%, 25%, and 50%. The dependent variables as follow: compressive strength and permeability. The controlled variables as follow: cement PCC, water cement ratio as much as 0,3, superplasticizer (type F) as much as 0,4% of weight of cement, percentage of fines aggregate was 20% of the total coarse aggregate. The maximum size of the coarse aggregate was 19,0 mm. The specimens consisted of cylindrical with diameter was 15 cm and height was 30 cm and slab with dimensions was 50 cm x 50 cm x 5 cm. Cylindrical specimen was tested compressive strength at the age of 7 days and 28 days, whereas slab specimen was tested permeability at the age of 28 days. Each variation consisted of 3 specimens. The results of the research showed that: (1) the compressive strength of porous concrete percentage of 0%, 25%, and 50% at the age of 7 days successively were 14,05 MPa, 6,97 MPa, and 2,99 MPa and at the age of 28 days successively were 18,18 MPa, 15,50 MPa, and 4,40 MPa, (2) the permeability of porous concrete percentage of 0%, 25%, and 50% at the age of 28 days successively were 7,65 mm/sec, 7,82 mm/sec, 13,36 mm/sec. Permeability tended to be higher if the result of compressive strength was lower. (3) The best composition of porous concrete mixture at 25% variation.*

*Kata Kunci: porous concrete, steel slag, compressive strength, permeability*