

The high-flowing sand-concrete (HFSC) containing natural sands as aggregate was carried out. The high fluidity and stability of HFSC can be achieved by tailoring the mix design parameters, such as fine to coarse sand ratio, dosage of additions, water to binder ratio and dosage of admixtures. Mini-cone slump test, v-funnel time test and viscosity model parameters were used to characterize the behaviour of HFSC in fresh state. The mechanical compressive strength in 28 d was also determined. A factorial design approach was used to establish models highlighting the effect of each mix-parameter on measured properties of HFSC. The derived models are valid for mixtures made with 0 to 0.3 of dune sand to total sand ratio, 82 to 418 kg/m³ of marble powder, 0.42 to 0.46 of water/binder ratio and 1.3% to 1.9% of superplasticizer high water-reducer. The results show that the derived models constitute very efficient means for understanding the influence of key mix-parameters on HFSC properties and are useful in selecting the optimum mix proportions, by simulating their impact on fluidity, stability and compressive strength