

Abstract :

The revolution in the sector of construction involves an enormous consumption of building materials, in particular the clinker as the basic product of the cement. However, this consumption of the cement has disadvantaging effects of the economic point of view (energy consumption in cement plants) and environmental (CO₂ gas emissions CO₂ with greenhouse effect and dust).

The use of addition in the manufacturing of compound cements presents certain advantages regarding gain on the cost of the product and even the technical performances of the finished product in terms of resistance and durability.

This study here in consists in proposing new compositions of ternary cement (CRS with addition of silica fume and slag, the substitute quantity of clinker by some silica and the slag. The mixtures composition (5 % fumed silica, 25 % slag) ; (7.5 % silica fume, 22.5 % slag) ; (10 % silica fume, 20 % slag) with 70 % clinker.

The obtained results showed the advantageous effect of the addition on the technical level, when the physico_mechanical properties were improved (the density, the setting time, the shrinkage, the expansion and the compressive strength), this in comparison with the reference mortar. A gain in in the economy of the final product of cement with addition, in the energy conception and the ecological impact level.

Key words : SRC cement, silica fume, slag, physico-mechanical properties.