Concrete is a porous material by nature that makes it vulnerable to the presence of aggressive agents such as carbon dioxide, chlorides and sulfate ions that decrease the durability of reinforced concrete structures (RCS). In present, it exists various products used as an alternative to curing, however ensure increased durability. In this sense, the use of silicon-based nanoparticles (NBS) as an option to improve the external curing process was investigated. For this, specimens of mortar were fabricated with ordinary portland cement and then the treatment at an early age was applied by two different methods: a) by an electric field with applying a voltage of 20V or b) by a film of NBS. They were characterized from tests of electrical resistivity, sorptivity, N\textsubscript{2} physisorption, SEM-EDS, and accelerated tests of carbonation and chlorides. Was obtained a reduction of carbon dioxide and chlorides up a 90% penetration over the reference improving microstructural properties. Therefore, the application may be promising treatment to improve external curing process and thereby increase the durability of the RCS.

**Keywords:** NanoSiO\textsubscript{2}, Durability, Hydration Products

**Presenting author’s email:** dulce.cruzmrn@uanl.edu.mx