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## **SUSTAINABLE CONCRETE HARDENING PROCESSES IN NORMAL CLIMATIC AND THERMAL TREATMENT CONDITIONS**

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### **Abstract**

Many researchers conducted studies on the composition and structure of the hydrated cement hardened in normal conditions of temperature and humidity or thermally treated. Until now, no study succeeded in clarifying all the physical-chemical laws that condition the transformation process of the cement paste into hydrated cement. This paper discusses the hardening process of the cement, when a complex structure occurs and its different phases result into a micro-crystalline shape. The compounds occurring during the initial stage of the hardening process are mostly instable and, depending on the future hardening conditions, they undergo several phase transformations or they react between themselves. Most of the formed crystals are very small and therefore they have gel-like properties.

*Key words:* climatic conditions, concrete hardening, thermal treatment

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