



## **Effect of soil pollution on water for mixing of concrete**

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ISO 12439, in addition to chemical and physical requirements, establishes maximum levels for harmful substances that may be present in the mixing water of concrete, when they come from natural sources from contaminated soils. These harmful substances considered in the ISO are sugars, phosphates ( $P_2O_5$ ), nitrate ( $NO_3^-$ ), lead ( $Pb^{2+}$ ) and zinc ( $Zn^{2+}$ ).

As an alternative to the maximum values, ISO verifies the effect of these substances in water from contaminated soils. This measurement is made on the effect on the mechanical strength of the concrete (compression at 7 and 28 days) and the setting times (start and end setting). This paper presents the results obtained on samples of concrete made with smaller, similar and more content to the maximum levels set by ISO 12439 are presented.

The results establish that in the case of nitrate, a substance present in many contaminated soils margins resistance variation or setting times allowed by ISO 12439 are not met.

Finally, it is concluded that in case of presence of these pollutants should be performed strength tests and setting times before authorizing the use of water.

Keywords: Harmful substances, contaminated soils, water pollution.