**Investigation of the Effect of Boron Wastes on Cement Mixture**

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| **Abstract** Boron deposits in Turkey, which has approximately 73% of the world's boron reserves, are operated for use in industrial production and advanced technology areas [1]. The aim of this study is to investigate the effects of boron waste remaining from the operation of boron deposits in the Emet (Kütahya) and Bigadiç (Balıkesir) regions of Turkey on chemical and mechanical properties by adding them to the cement injection mixture.Boron waste samples taken from both regions were subjected to X-Ray Diffractometry (XRD) and X-Ray Fluorescence (XRF) methods for mineralogical and chemical analyses. As a result of the analyses, while high calcium oxide (CaO: 36.13%) content and 3.34% boron oxide (B2O3) were found in Bigadiç samples, the CaO ratio was higher in Emet samples (53.22-55.16%), and the SiO2 and B2O3 (<0.5%) ratios were very low. Boron waste samples mainly contain calcite, dolomite and minor amounts of quartz.When the pouring was analyzed, the strength of cement injection mixtures with 5% and 10% boron waste additives was measured as 40.5 MPa and 45 MPa on average, respectively. These values ​​show that boron waste cement meets the minimum compressive strength criteria according to international standards [2]. The use of boron wastes not only improves the mechanical properties of the cement injection mixture, but also provides significant benefits in terms of environmental pollution. Recycling of wastes shows that it can provide significant benefits in terms of both economic and environmental sustainability while reducing natural resource consumption.**References:** [1] <https://www.etimaden.gov.tr/turkiyede-bor>[2] https://edergi.santiye.com.tr/407/#p=93 |

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| ***Keywords:*** *Boron Waste Material, Cement, Chemical Properties, Mechanical Properties* |

*This study is supported by the TÜBİTAK 2209-A University Students Research Projects Support Program.*

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