

4th International Conference and Expo on

Ceramics and Composite Materials

May 14-15, 2018 | Rome, Italy

Usage of boron waste in transparent glazes

Fidan Tonza¹, Ceren Peksen² and Erhan Ayas³^{1,2}Ondokuz Mayıs University, Türkiye³Anadolu University, Türkiye

The recycling of waste materials contribution and usage as a raw material are important in terms of conservation of natural balance and energy saving. Boron raw materials are the most important natural sources for many industrial applications such as ceramic, agriculture and construction and their values become increased with the finding of boron usage in ceramic industry. Boron is mined in Eskisehir Kirka region of Türkiye which has the biggest boron deposition of the World. Instead of recreating the raw materials, the use of boron wastes has gained importance in ceramic glaze preparation because of preserving the reserves. In the present study wastes of Eti Maden Kirka Plant were used in the production of ceramic glazes which was suitable for different types of ceramic bodies. Boron waste added transparent glazes compositions were applied on the biscuit fired ceramic samples and single firing was employed. The effects of the glaze compositions prepared with the different additions of the boron waste on the ceramic surfaces were evaluated. It was seen that the boron waste added glaze is formed on the ceramic bodies.

Recent Publications:

1. Kaman D, Koroglu L, Ayas E, Guney Y (2017) The effect of heat-treated boron derivative at 600 C on the mechanical and microstructural properties of cement mortar, *Construction and Building Materials*, 154:743-7541.
2. Barutca B, Koroglu L, Ayas E, Koparal T (2018) In vitro cytotoxicity of monticellite based bioactive ceramic powder synthesized from boron derivative waste, *Ceramics International*.
3. Koroglu L, Butev E, Esen Z, Ayas E (2017), A novel approach for synthesis of monticellite based bioactive ceramic powders from boron derivative waste, *Materials Letters*, 209: 315-318.
4. Uslu T, Arol A (2004) Use of boron waste as an additive in red bricks, *Waste Management*, 24:217-220.
5. Kavas T (2006) Use of boron waste as a fluxing agent in production of red mud brick, *Building and Environment*, 41:1779-1783.

Biography

Fidan Tonza graduated from Dokuz Eylul University, Faculty of Fine Arts, and Department of Ceramics in 2007. She completed her Master of Arts Degree at the same university on the subject of "Research of Eastern Mysticism, Anatolian Sufism and Ceramic Applications" in 2012. She completed her Ph.D. at Dokuz Eylul University on the subject of "The Association of Street Art With Ceramic Material". She has participated in several international and national exhibitions. She has also received 3 awards. In 2011 she founded her own studio "Fidan Tonza Art Studio" in Izmir. In 2017, she started to work as an assistant professor at Samsun Ondokuz Mayıs University of Fine Arts Faculty, Ceramic-Glass Department.

fidantonza@hotmail.com