## (19-013) - Characterization of partially stabilized zirconia with magnesia and yttria oxides for metal-ceramic brazing cutting tools.

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Zirconia is an important structural and functional material in modern technology because of its high strength and fracture toughness, excellent wear resistance at elevated temperatures. For these reasons, zirconia can be applied in wire drawing dies, cutting and machining tools. Most of these zirconia applications are related with metal-ceramic devices. Brazing is a wellestablished technique to joint zirconia with metals. To improve wettability, spreading and adhesion, an active element such as titanium is added to filler metals. During the brazing process, titanium reacts with the zirconia, depleting the surface region of oxygen. This produces darkening effect in the interfacial region towards the zirconia bulk and may affect its properties. Therefore, previous studies were performed in order to characterize microstructural (SEM and XDR) and mechanically (flexural and hardness tests) partial stabilized zirconia with magnesia and yttria oxide stabilizers, and evaluate their effect on the zirconia final properties after brazing thermal cycles.