## 08-028

## Fracture toughness and crack morphology in glass ceramics of lithium disilicate

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The fracture toughness and crack morphology of the lithium disilicate glass ceramics were studied by indentation techniques. The aim of this study was to quantify the fracture toughness and analyze the mechanism of propagation of cracks and fractures in the lithium disilicate glass ceramics after indentation with pyramidal indenters. Indenters of different geometries, corner cube and a four sided pyramidal indenter with an apex angle of 70°, were used to induce fracture by indentation. An analysis of the mechanism of fracture surface of samples was performed at different applied loads. The models of Lawn [1] and Niihara [2] were used to calculate the fracture toughness. The results showed differences in the values of fracture toughness between the models used. The stress distribution is dependent on the indenter geometry inducing different crack propagation. Figure 1 shows the impressions made by indentations performed on a sample of lithium disilicate glass with applied load of 400 mN. Figure 1a shows the impression residual generated by the tip of the corner cube and figure 1b that for a four sided pyramidal indenter with an apex angle of 70°.