# HIGH TEMPERATURE COMPRESSION PROPERTIES OF A POLYMER-DERIVED CERAMIC FOR SOFC SEALING APPLICATIONS

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Solid oxide fuel cells (SOFCs) have received much attention as an alternative solution for clean and efficient energy conversion, but their efficiency is dependent, in part, on the ability of seals to keep fuel gas and oxygen separated. Silicate glasses and glass composites are the current SOFC sealing materials of choice due to their ability to flow and form a hermetic seal at elevated temperatures. A thermally and mechanically stable silicon oxycarbide glass derived from a polysiloxane was investigated as an alternative SOFC compressive sealing material. Dense specimens of the material were tested in compression at room temperature and at a typical SOFC operating temperature (850°C) to determine the effect of high temperature on the strength of the material. The mean compressive strengths at room temperature and at 850°C were 246 +/- 51 MPa and 281 +/- 37 MPa respectively. The material exhibited high temperature compressive behavior that was comparable to that at room temperature, indicating that the high temperature does not negatively affect the compressive strength of the material.