

BaZrO₃

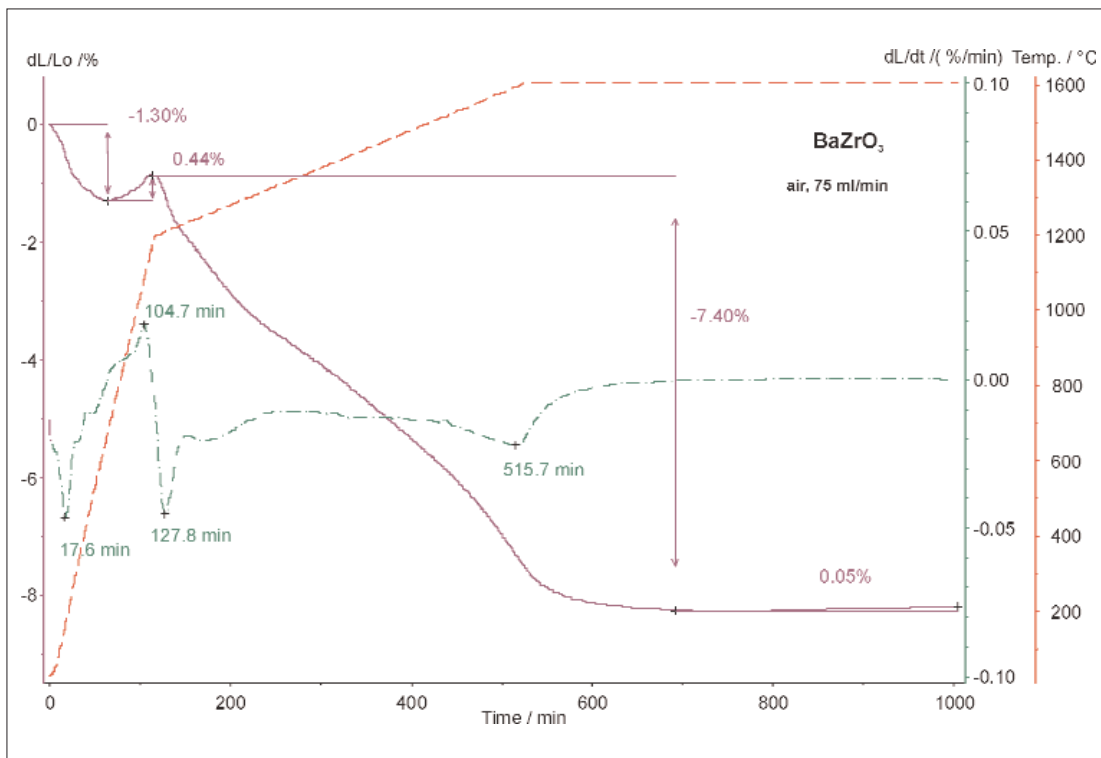
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BaZrO₃ crystallizes in the ideal cubic perovskite structure. The melting point of BaZrO₃ is higher than 2500°C. It is interesting as crucible material for crystallization of the high-temperature superconductor material group of the Y-Ba-Cu-oxides due to its chemical stability.

Test Conditions:

Temperature range: RT ... 1590°C
Heating rates: 10 K/min, 1 K/min
Atmosphere: Air at 50 ml/min

Sample length: 3 mm
Sample carrier: Alumina



Results:

A pressed powder pellet of BaZrO₃ was measured with the high-temperature dilatometer 402 C in air at a special temperature program. After the binder burnout during heating to 1000°C, sintering of the sample started and was not finished after the 2nd heating ramp at 1 K/min to 1590°C. During the isothermal segment, the sample length further decreased during 3.5 hours. Then an expansion occurred most probably due to grain growth. The grain growth might reduce the density of the sample again and the isothermal segment had then to be stopped. With the dilatometer results, the sintering behaviour can be studied and helps optimize the properties of the fired ceramic.