

Integrated calorimetric microreactor in low-temperature cofired ceramic (LTCC) technology

Peter Ryser, Thomas Maeder

Laboratoire de production microtechnique 2 EPFL, CH-1015 Lausanne

LTCC, which is an evolution of classical thick-film technology, has recently attracted considerable interest as a material for ceramic MEMS and microfluidics due to its ease of 3D structuration and possibility of integration of functional layers. In contrast to polymeric materials, LTCC, as a ceramic material, provides hermeticity, as well as outstanding chemical and thermal stability. This presentation describes the application of LTCC technology to fabrication of a ceramic microfluidic device: a chemical microreactor with integrated temperature control and measurement of the flow of reactants and of the heat of reaction (calorimetry). Results on acid / base neutralisation reactions are shown to illustrate the properties of the device