Study of the behaviour of YSZ dispersions in water

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Motivations:
Better understanding of the behaviour of yttria fully stabilized zirconia in water for applications in wet ceramic processing

Questions:
Are Y\textsuperscript{3+} and Zr\textsuperscript{4+} leaching in solution from the cubic structure?
Is the particle surface affected?
Are the particle structure and composition affected?

Conclusions:
Y\textsuperscript{3+} is leaching from the cubic structure in aqueous acidic solutions.
Zr\textsuperscript{4+} is leaching at pH=1, in smaller extent than Y\textsuperscript{3+}.
The amount of Zr\textsuperscript{4+} in solution is low in the entire pH range explored.
Zeta potential and pH of the dispersion change with time, showing that the particle surface and the solutions are modified.
The equilibrium is reached in 1-2 days, depending on the pH.
Possible issues in suspension stability during processing.
The YSZ particle structure and overall composition are not affected.