

## **Evaluation of Fe and Ni Base Chromia and Alumina Forming Alloys for SOFC – BOP Applications**

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Chromia and alumina scale forming Fe and Ni base alloys have been evaluated under SOFC operating conditions for surface stability, metal loss, scale chemistry and chromia evaporation. These alloys are targeted for balance of plant components such as ducting, heat exchangers, ejectors and fuel supply lines. Experiments were conducted in flowing humidified air (3-10% H<sub>2</sub>O) at elevated temperatures (700-950C). Surface morphology, elemental distribution and constituent phases formed in the surface scale were investigated using XRD, SEM, FIB, and TEM techniques. Resulting Cr evaporation was studied using ICPMS to quantify Cr evaporation rate. A comparative assessment of the scaling behavior, Cr evaporation and the metal loss from select alloys and coatings will be presented.