

Electronic Supplementary Information:

Exsolution of Fe-Ni alloy nanoparticles from (La,Sr)(Cr,Fe,Ni)O₃ perovskites as potential Oxygen Transport Membrane catalysts for methane reforming

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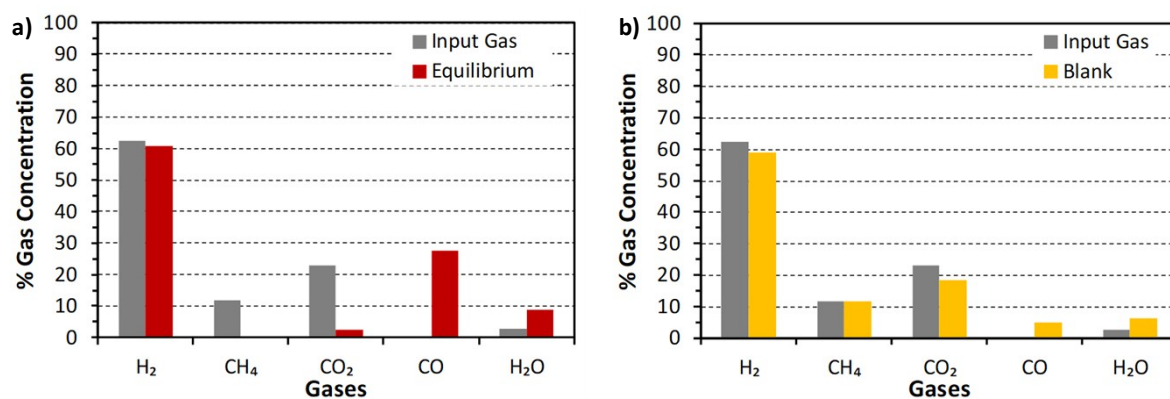


Figure S1 a) Thermodynamic equilibrium of the input gas composition at 900 °C and 1 atm calculated by the HSC Chemistry software b) Gas Composition from the outlet of the reactor during a blank test at 900 °C and 1 atm

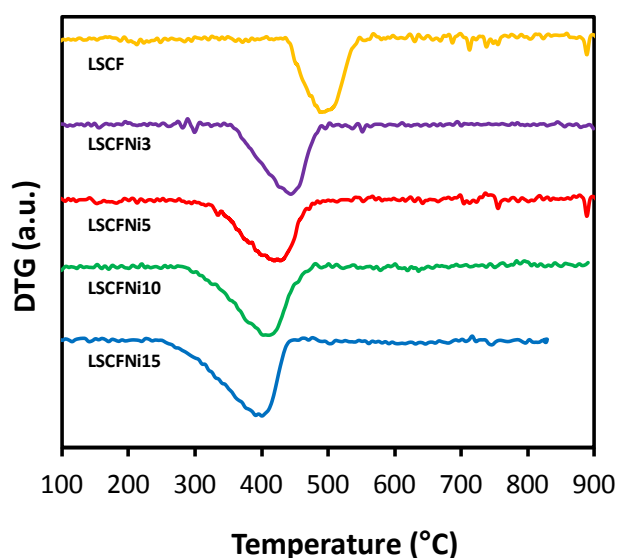


Figure S2 Derivative Thermogravimetry of the LSCF compounds in 5% H₂/Ar

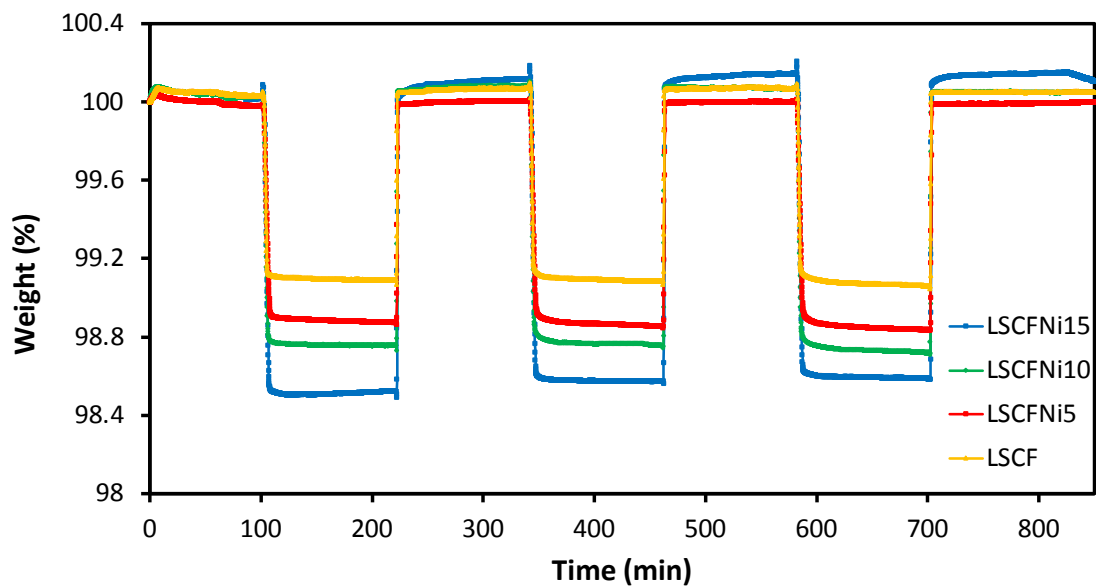


Figure S3 Thermogravimetric Analysis of the LSCFNi compounds during redox cycling at 900 °C

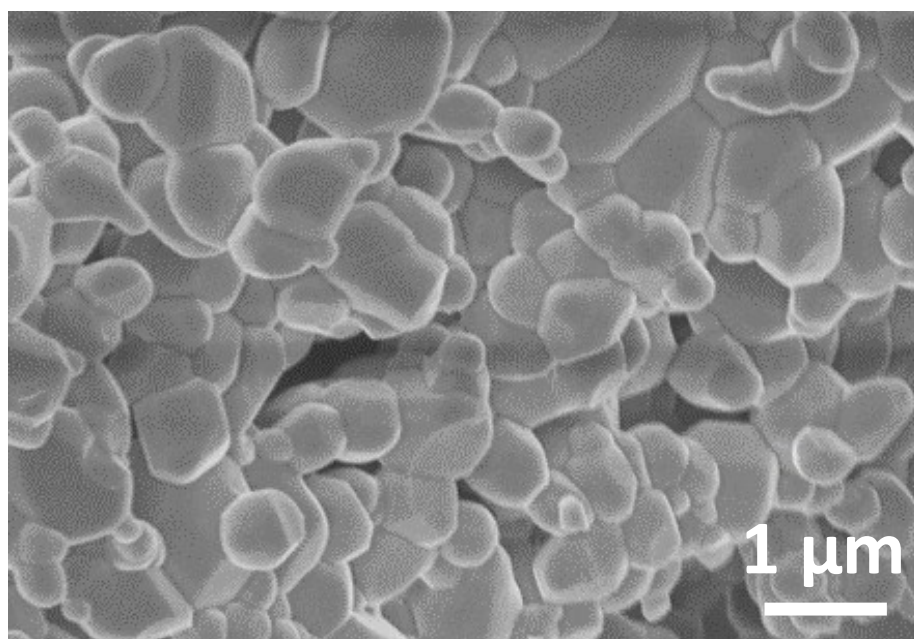


Figure S4 SEM micrograph of the as-prepared LSCFNi15 perovskite

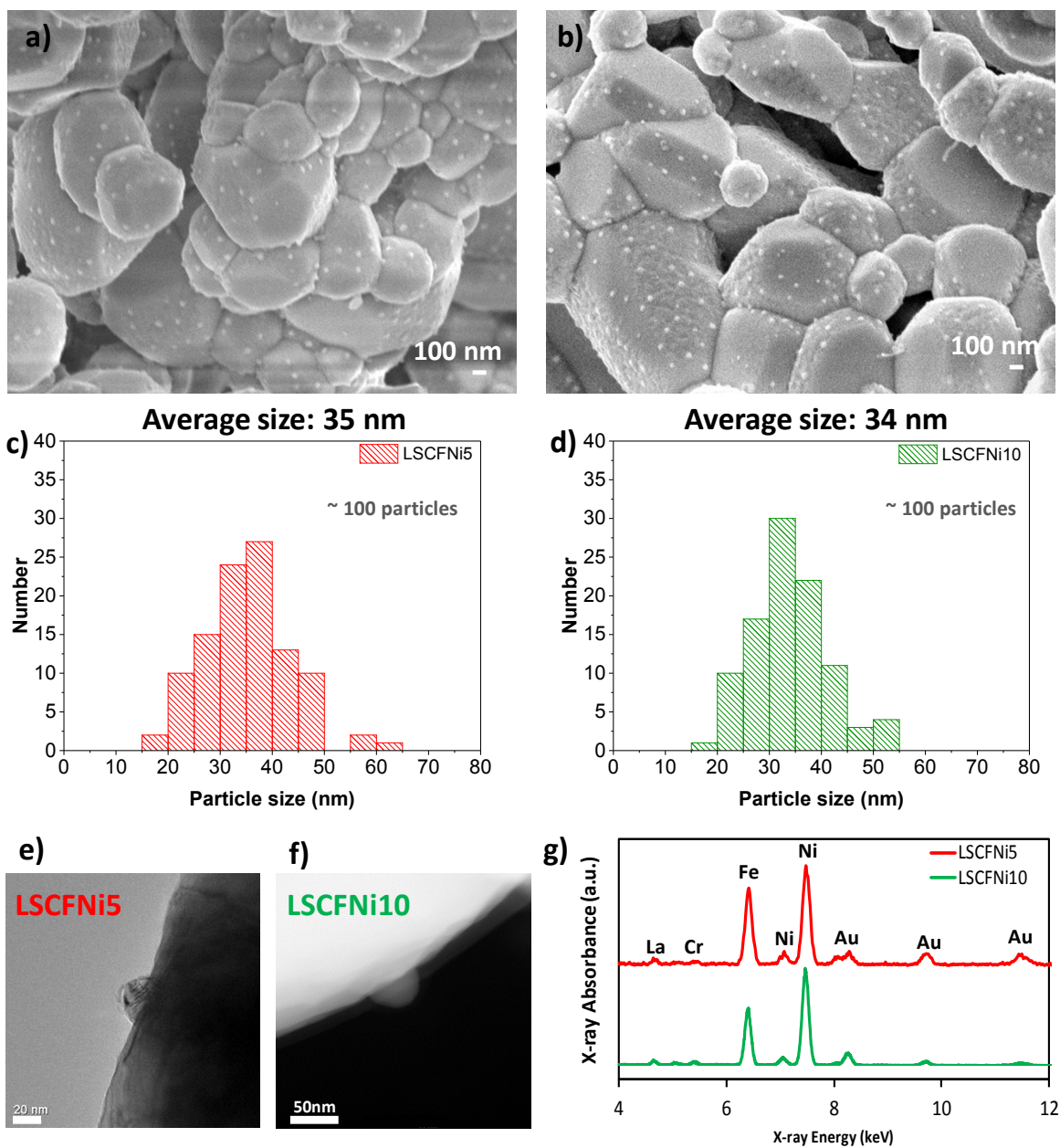


Figure S5 Post-reduction SEM micrographs of a) LSCFNi5 and b) LSCFNi10, particle size analysis of c) LSCFNi5 and d) LSCFNi10, TEM micrographs of e) LSCFNi5 and f) LSCFNi10, g) EDX spectra of the exsolved nanoparticles

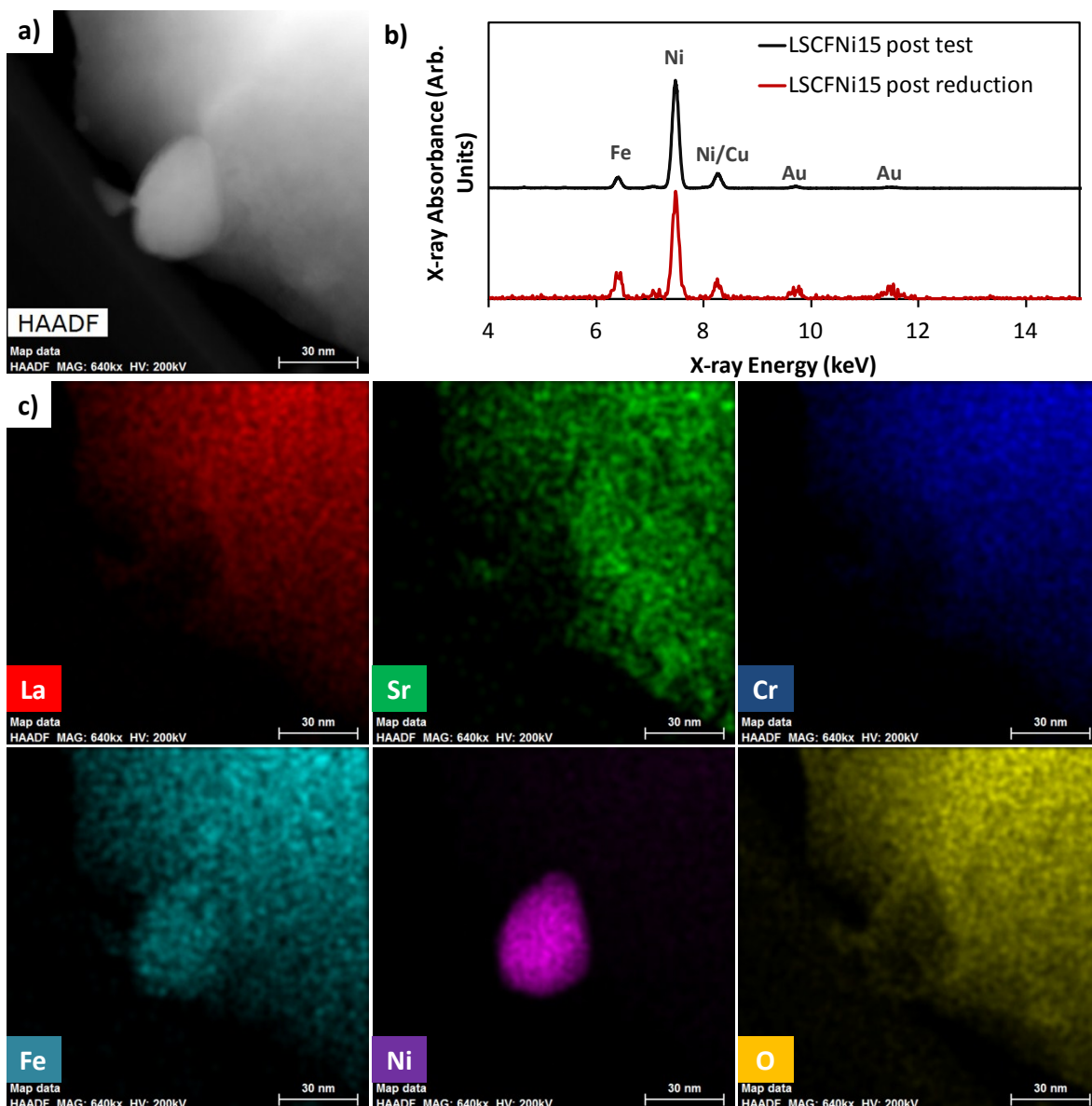


Figure S6 a)TEM micrograph of LSCFNi15 nanoparticle after the catalytic testing, b) EDX analysis of this nanoparticle and comparison with the composition before testing, c) Elemental mapping of the TEM micrograph