ADVANCED MATERIALS

Supporting Information

for

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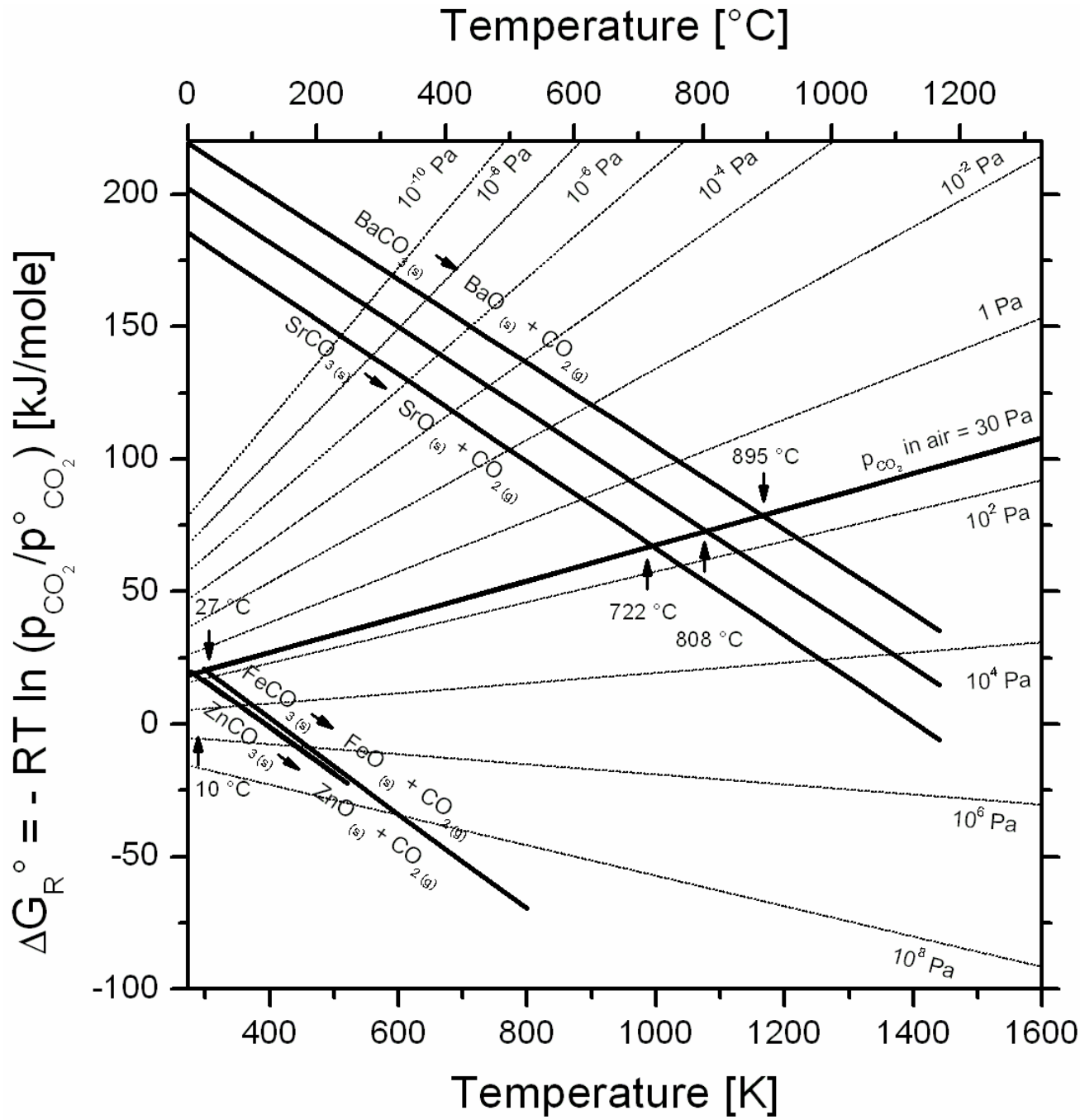
Supplementary Information to
"How the $(Ba_{0.5}Sr_{0.5})(Fe_{0.8}Zn_{0.2})O_{3-\delta}$ and $(Ba_{0.5}Sr_{0.5})(Co_{0.8}Fe_{0.2})O_{3-\delta}$ perovskites form by the EDTA/citric acid complexing method"
by Julia Martynczuk, Mirko Arnold, Haihui Wang,
Juergen Caro, Armin Feldhoff,
Advanced Materials



Supplementary Information 1. Ellingham diagram for the decomposition of carbonates under different CO_2 partial pressures calculated after thermodynamic data that are tabled in [22]. The dashed lines represent standard free enthalpies for CO_2 for different equilibrium partial pressures over the oxide/carbonate. P^0_{CO2} = 101.3 kPa refers to standard conditions. The decomposition of a carbonate can take place just if it forces a CO_2 potential that is higher than the one in the surrounding atmosphere. This situation is given if the ΔG curve for a decomposition reaction lies lower in the in the Ellingham diagram than the curve for CO_2 for its relevant partial pressure (in ambient air P_{CO2} = 30 Pa). $ZnCO_3$ can decompose at temperatures above 10 ℃, $FeCO_3$ above 27 ℃, $SrCO_3$ above 722 ℃ and $BaCO_3$ above 895 ℃. The ΔG curve for the mixed carbonate $Ba_{0.5}Sr_{0.5}CO_3$ is assumed to be midway between with a decomposition temperature of 808 ℃.

Ref. [22]: I.Barin, F. Sauert, G. Patzki, *Thermochemical Data of Pure Substances,* 3rd edition, Vol. I & Vol. II, VCH Weinheim, **1995**.