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Prediction of Formation Probability of Rare earth uranates inside nuclear reactor fuel from the determined oxygen potential using solid oxide Galvanic cell

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Table 1

The reversible E.m.fs of Galvanic cell(1) : (-) Pt, {Ni(s) + NiO(s)} //YSZ// air {(p(O₂) = 20.95 kPa)}, Pt (+)

<i>T/K</i>	E.m.f/V(Experiment)	E.m.f/V(Fitted)	Δ E.m.f/V
867.0	0.8430	0.8402	-0.0028
703.3	0.9084	0.9117	0.0033
967.7	0.7978	0.7963	-0.0015
1005.0	0.7806	0.7800	-0.0006
1041.0	0.7651	0.7643	-0.0008
1080.7	0.7480	0.7470	-0.0010
1122.7	0.7289	0.7287	-0.0002
1042.4	0.7659	0.7637	-0.0022
1076.4	0.7495	0.7489	-0.0006
1093.5	0.7384	0.7414	0.0030
1124.8	0.7258	0.7277	0.0019
1155.0	0.7143	0.7146	0.0003
1187.0	0.6990	0.7006	0.0016

1191.1	0.1510	0.1492	-0.0018	1075.5	0.5162	0.5170	0.0008								
992.1	0.2060	0.2002	-0.0058	1040.5	0.5353	0.5371	0.0018								
1050.5	0.1824	0.1853	0.0029	1009.1	0.5571	0.5552	-0.0019								
1080.7	0.1742	0.1775	0.0033	1001.1	0.5630	0.5598	-0.0032								
1123.5	0.1672	0.1665	-0.0007	940.6	0.6000	0.5946	-0.0054								
1154.7	0.1600	0.1585	-0.0015	907.5	0.6181	0.6136	-0.0045								
1185.6	0.1519	0.1506	-0.0013	965.7	0.5709	0.5801	0.0092								
				1031.3	0.5462	0.5424	-0.0038								
				1027.8	0.5417	0.5444	0.0027								
				1055.6	0.5257	0.5284	0.0027								
				1090.1	0.5087	0.5086	-0.0001								
				1114.2	0.5005	0.4947	-0.0058								
				1142.7	0.4818	0.4783	-0.0035								
				1142.2	0.4815	0.4786	-0.0029								
				1174.3	0.4626	0.4602	-0.0024								
				1190.3	0.4508	0.4510	0.0002								

$\Delta E.m.f / V = E.m.f(\text{Fitted}) - E.m.f(\text{Experimental})$