

Barium silicate seals for YSZ - based electrochemical devices

Alyona Vepreva¹, Dmitry Dubovtsev¹, Daria Krainova¹, Yulia Chetvernykh¹, Semyon Belyakov³, Nailya Saetova^{1,2}, and Anton Kuzmin^{1,2*}

Table S1 – EDX results for spectra pointed in Figures 7 and 8.

Element content (wt %)	Ba	Mg	Si	O	Al
1	32.3	3.3	21.2	39.8	4.7
2	-	31.5	21.1	47.4	-
3	33.6	3.1	24.7	36.8	1.8
4	48.4	0.6	20.2	30.8	-
5	34.7	4.0	21.8	37.7	1.8
6	-	22.3	28.3	49.4	-
7	-	23.1	29.1	47.8	-
Mg₂SiO₄*	-	34.6	20.0	45.5	-
MgSiO₃*	-	24.2	28.0	47.8	-
BaSi₂O*	50.2	34.6	20.0	45.5	-

*-calculated values

Table S2 – EDX results for spectra pointed in Figure 11.

Element content (wt %)	Ba	Mg	Si	O	Al	Zr	Y
1	29.8	0.1	18.1	32.5	-	19.5	-
2	32.3	3.7	20.4	36.6	1.1	0.4	5.5
3	2.4	32.5	19.9	45.2	-	-	-
4	0.3	33.9	20.7	44.5	0.6	-	-
5	30.4	-	18.3	31.6	-	19.7	-
6	29.8	0.1	18.2	32.8	-	19.1	-
7	0.6	33.2	19.6	46.6	-	-	-

8	33.9	4.5	21.2	39.4	1.0	0.2	4.1
9	0.3	33.7	19.2	46.7	0.2	-	-
10	32.3	3.2	24.0	39.1	1.4	3.9	2.6
11	2.5	30.7	20.5	46.2	0.1	-	-
12	14.0	23.0	20.7	41.7	0.6	0.8	1.1
13	0.1	37.6	16.2	45.5	0.6	-	-
14	34.7	2.4	20.8	40.6	1.5	12.0	1.6
Mg₂SiO₄*	-	34.6	20.0	45.5	-	-	-
BaZrSi₃O₉*	30.1	-	18.4	31.5	-	20.0	-

*-calculated values

Figure S1 – Oxygen pump with sensor glued with glass sealant

