Electronic Supplementary Material (ESI) for RSC Advances.

S1. SEM images including aperture measurement of the surface of MAO-Mg sheets

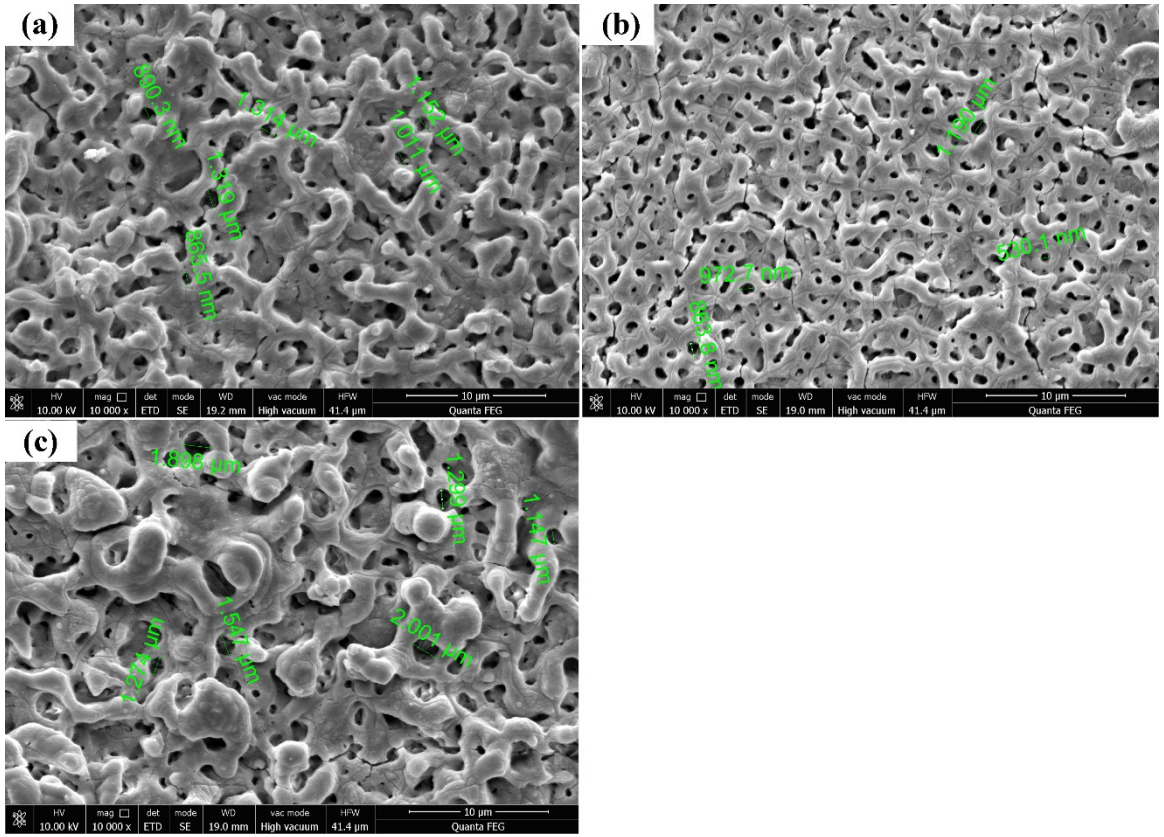


Fig. 1 SEM images of the surface of MAO-Mg sheets under different MAO voltage (frequency was 600 Hz): (a) 300 V; (b) 350 V; (c) 400 V

(They are consistent with Figure 2 (b-d))

Conclusion: After removing the maximum and minimum values, the average aperture is about 1.017 µm, 918.25 nm and 1.504 µm in turn. Thus, the most dense and uniform pore structure was obtained at 350 V under 600 Hz.

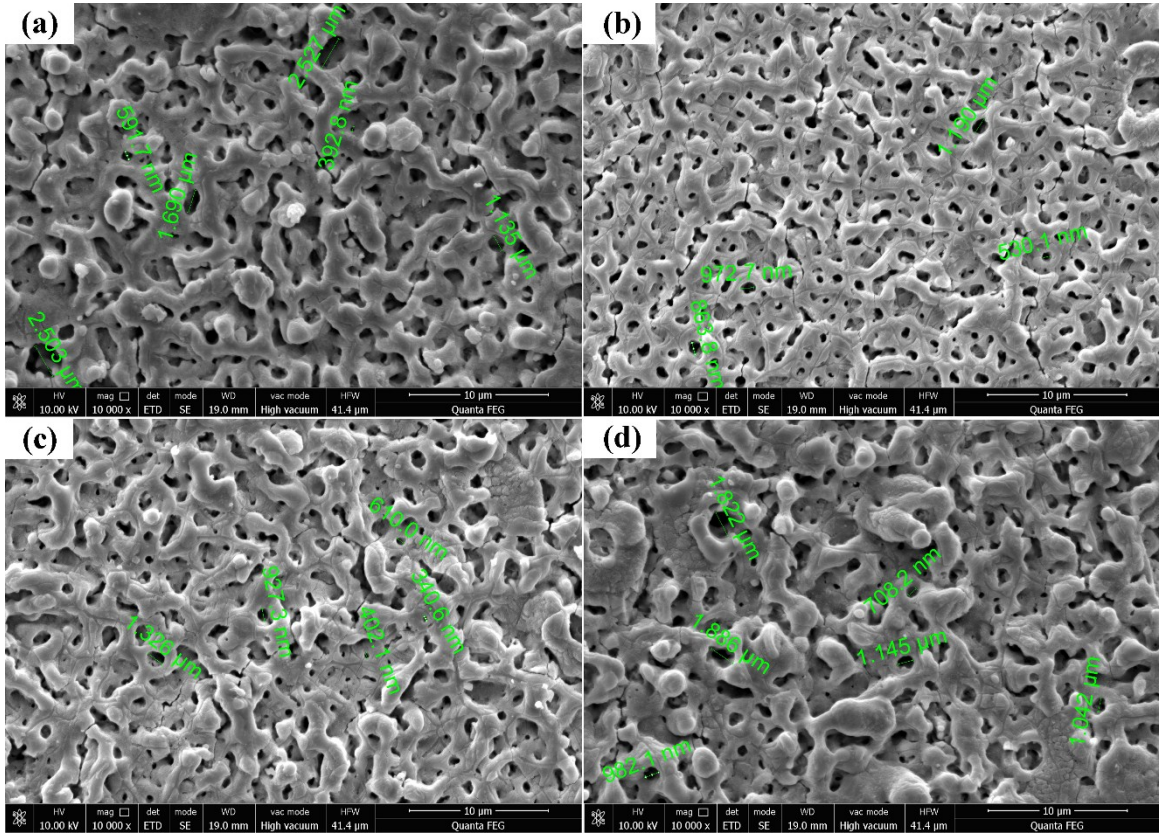
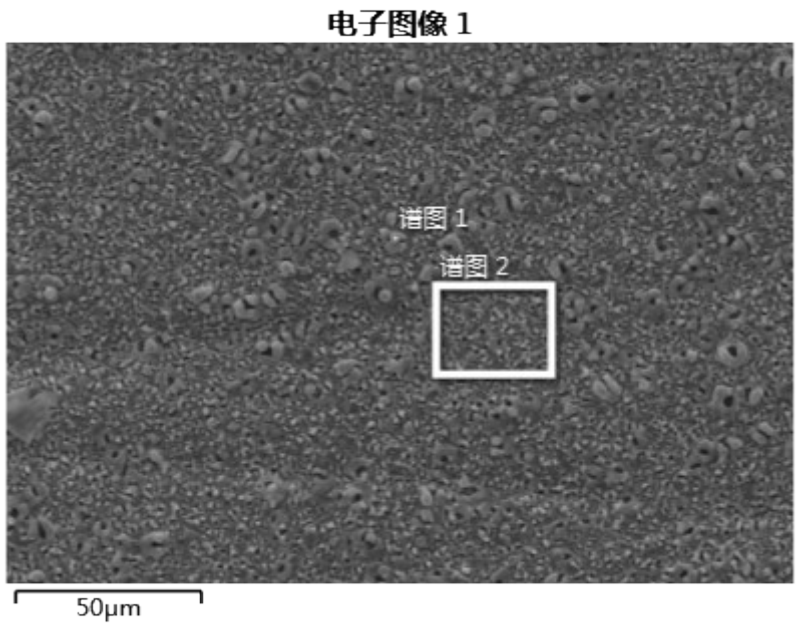


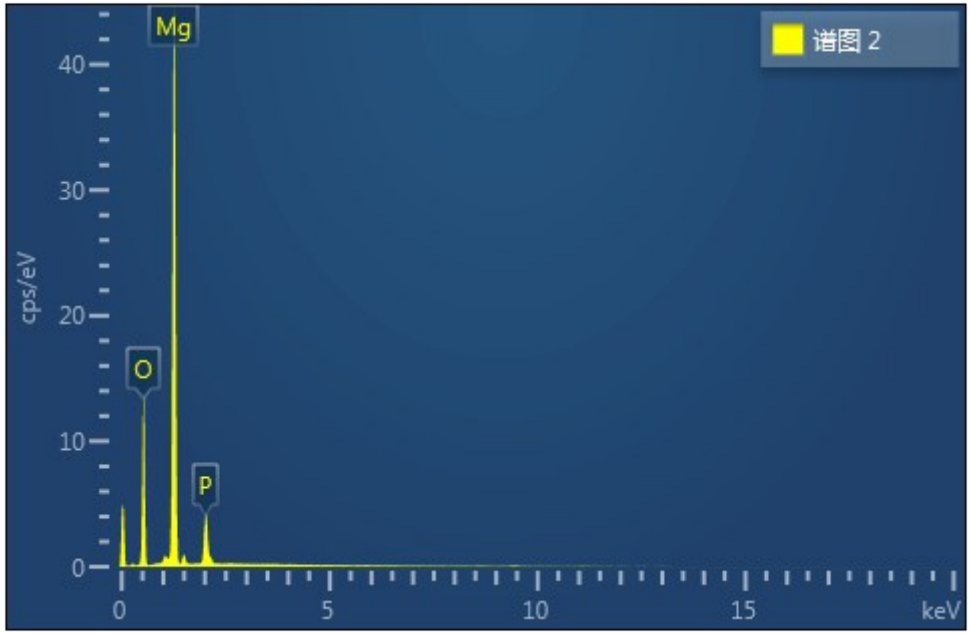
Fig. 2 SEM images of the surface of MAO-Mg sheets under different MAO voltage (voltage was 350 V): (a) 400 Hz; (b) 600 Hz; (c) 800 Hz; (d) 1000 Hz

(They are consistent with Figure 3 (b-e))

Conclusion: After removing the maximum and minimum values, the average aperture is about 1.409 μm, 918.25 nm, 646.4 nm and 1.247μm in turn. Thus, the most dense and uniform pore structure was obtained at 800 Hz under the optimal voltage of 350 V.

S2. The original EDS analysis

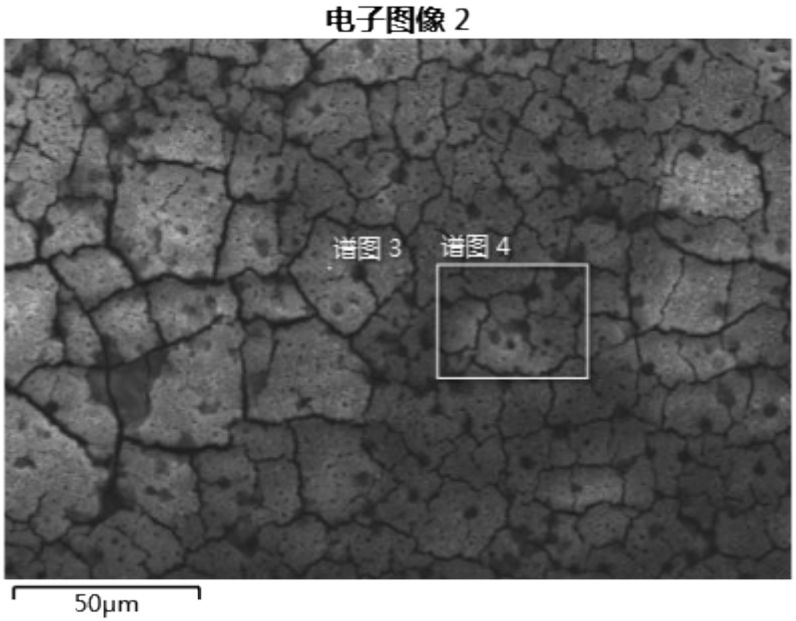


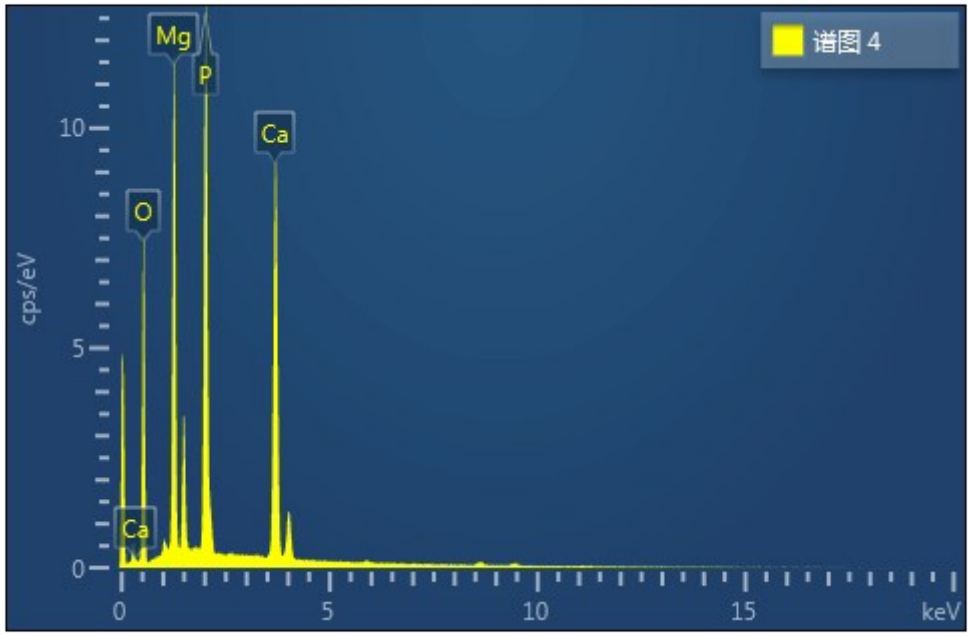


元素	线类型	表观浓度	k 比值	wt%	wt% Sigma	原子百分比	标准样品标签	厂家标准	标准样品标定日期
O	K 线系	61.65	0.20746	41.29	0.20	52.32	SiO2	是	
Mg	K 线系	57.51	0.38143	51.61	0.19	43.03	MgO	是	
P	K 线系	8.32	0.04653	7.10	0.10	4.65	GaP	是	
总量:				100.00		100.00			

2. Immersed for 5 days

2018/6/27

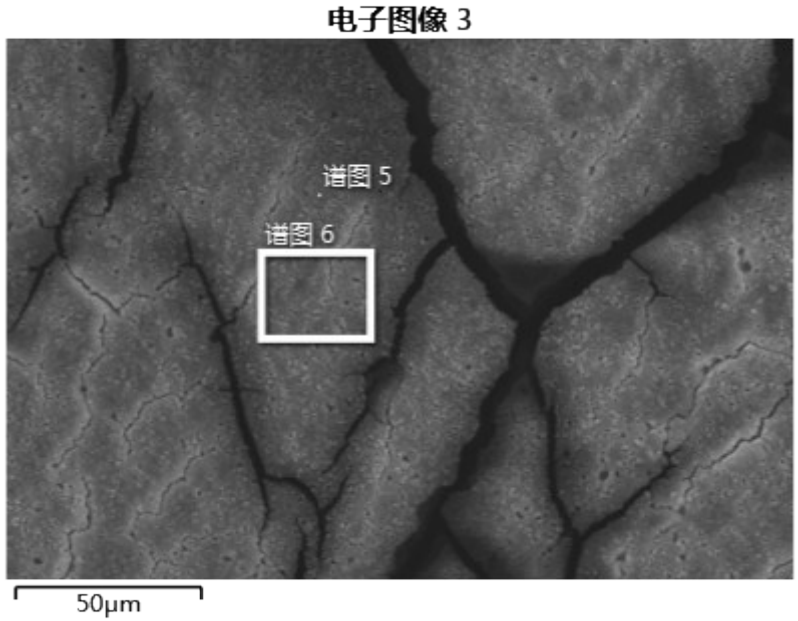


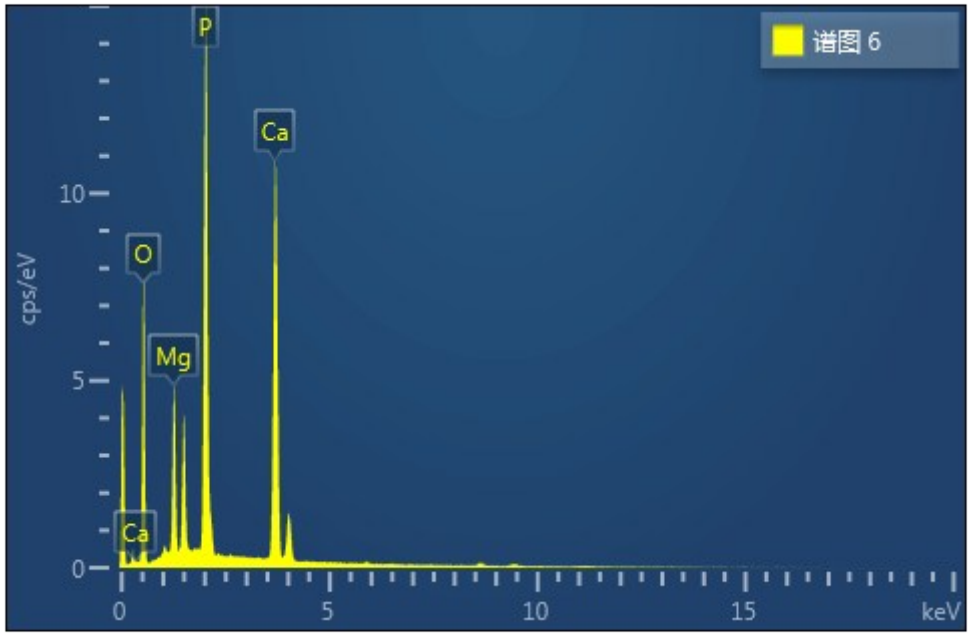


元素	线类型	表观浓度	k 比值	wt%	wt% Sigma	原子百分比	标准样品标签	厂家标准	标准样品标定日期
O	K 线系	38.20	0.12855	47.21	0.26	63.33	SiO2	是	
Mg	K 线系	16.68	0.11062	16.28	0.13	14.37	MgO	是	
P	K 线系	29.30	0.16387	17.49	0.13	12.12	GaP	是	
Ca	K 线系	24.32	0.21732	19.03	0.14	10.19	Wollastonite	是	
总量:				100.00		100.00			

3. Immersed for 10 days

2018/6/27

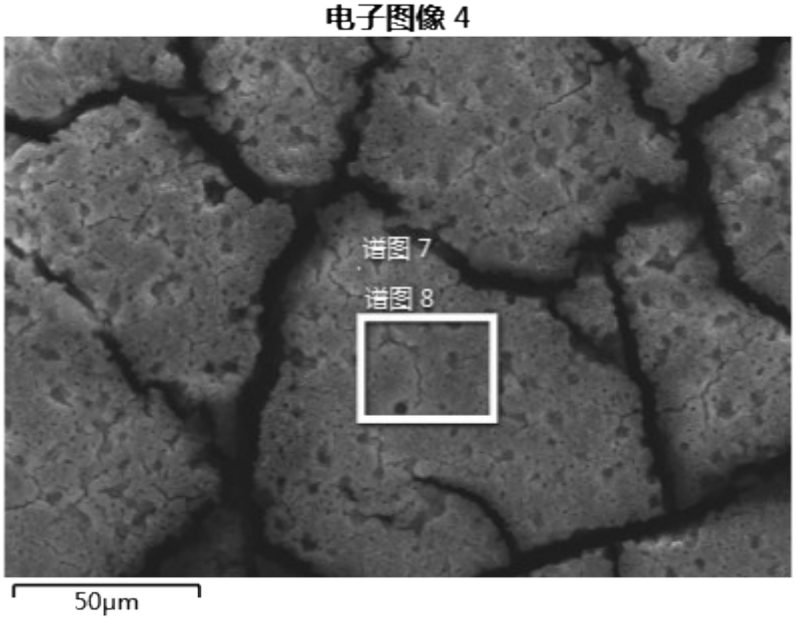


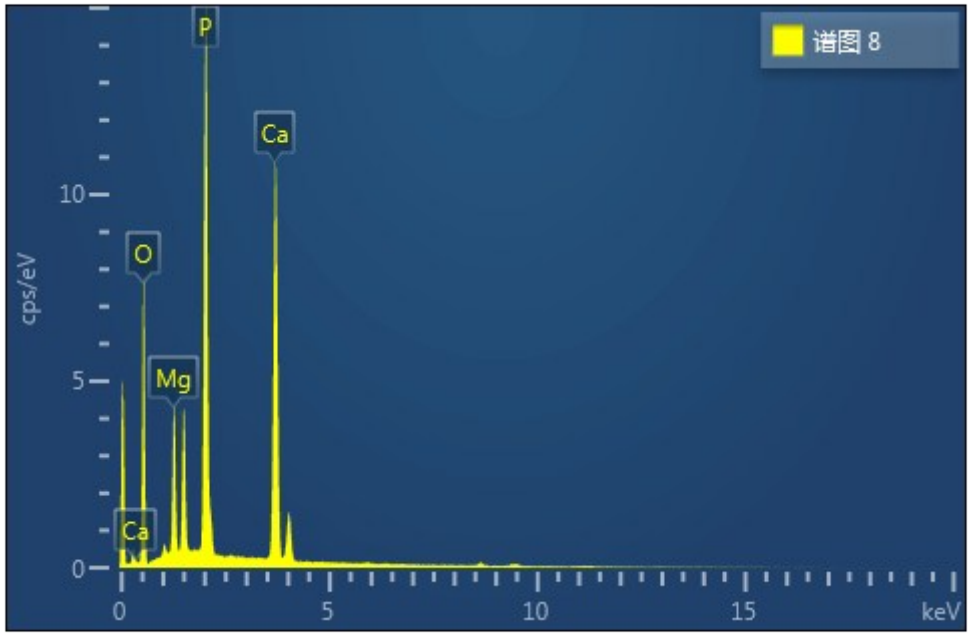


元素	线类型	表观浓度	k 比值	wt%	wt% Sigma	原子百分比	标准样品标签	厂家标准	标准样品标定日期
O	K 线系	39.93	0.13438	51.79	0.26	68.95	SiO2	是	
Mg	K 线系	6.95	0.04608	7.06	0.09	6.18	MgO	是	
P	K 线系	34.69	0.19402	19.19	0.14	13.20	GaP	是	
Ca	K 线系	28.81	0.25746	21.96	0.15	11.67	Wollastonite	是	
总量:				100.00		100.00			

4. Immersed for 15 days

2018/6/27

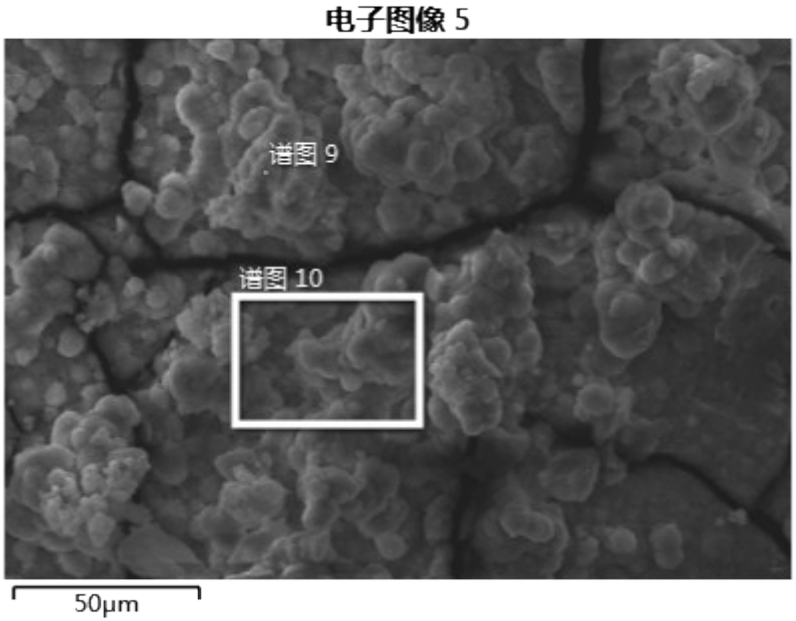


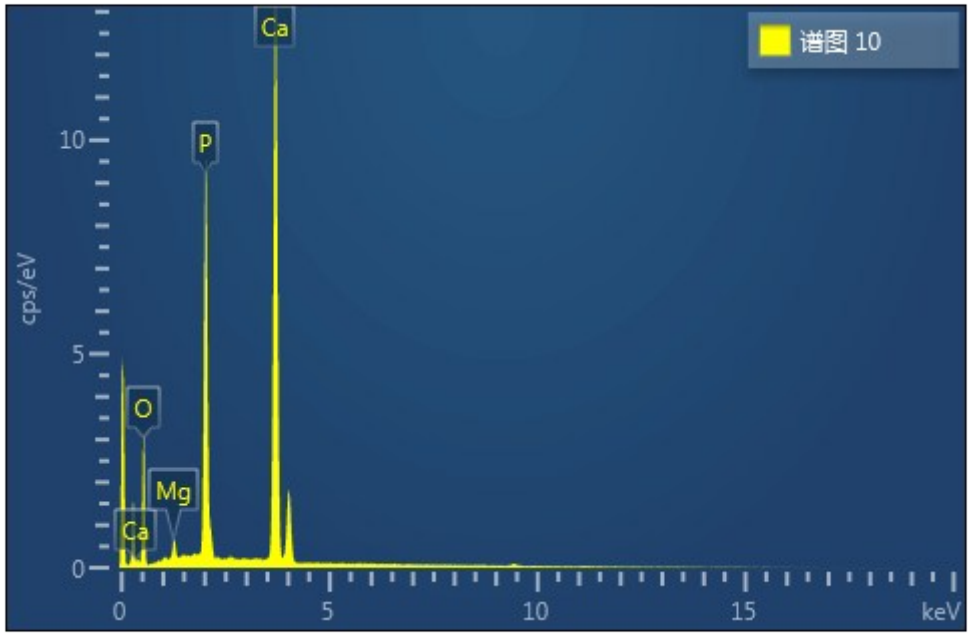


元素	线类型	表观浓度	k 比值	wt%	wt% Sigma	原子百分比	标准样品标签	厂家标准	标准样品标定日期
O	K 线系	40.02	0.13467	52.21	0.26	69.42	SiO2	是	
Mg	K 线系	6.26	0.04151	6.41	0.08	5.61	MgO	是	
P	K 线系	34.89	0.19513	19.31	0.14	13.26	GaP	是	
Ca	K 线系	28.84	0.25772	22.07	0.15	11.71	Wollastonite	是	
总量:				100.00		100.00			

5. Immersed for 20 days

2018/6/27

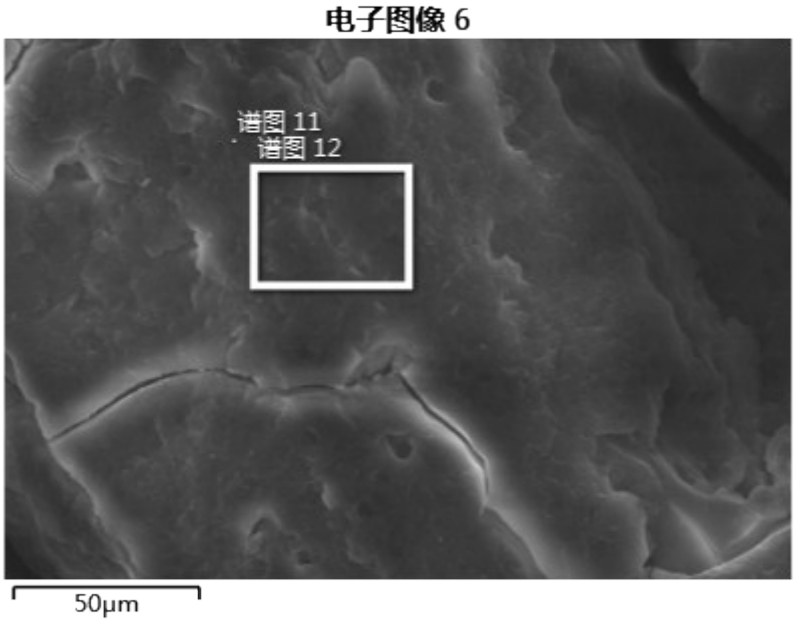


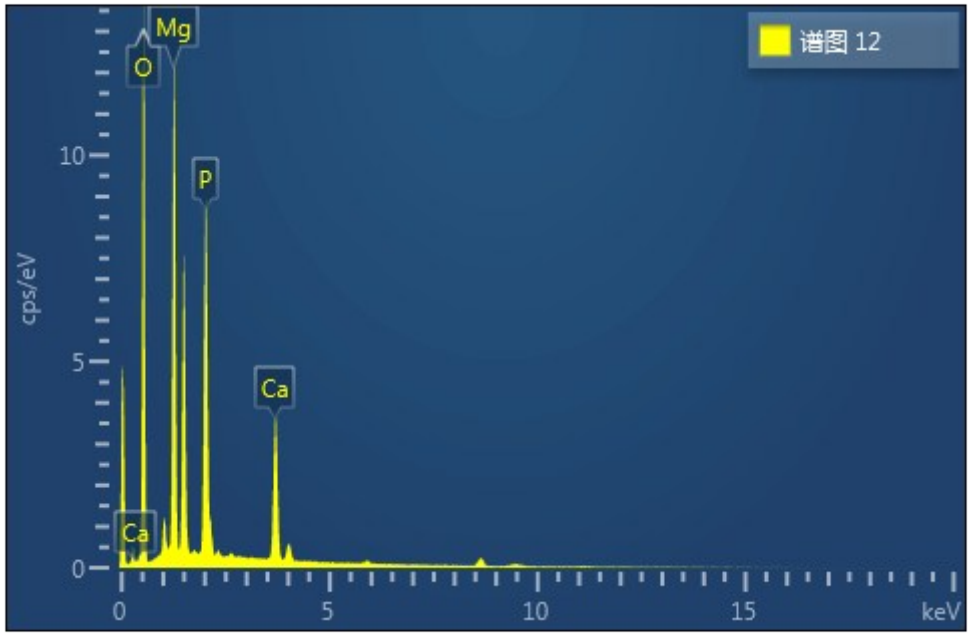


元素	线类型	表观浓度	k 比值	wt%	wt% Sigma	原子百分比	标准样品标签	厂家标准	标准样品标定日期
O	K 线系	21.96	0.07390	44.16	0.33	64.30	SiO2	是	
Mg	K 线系	0.89	0.00591	1.02	0.05	0.98	MgO	是	
P	K 线系	29.33	0.16405	16.69	0.14	12.55	GaP	是	
Ca	K 线系	47.83	0.42733	38.14	0.25	22.17	Wollastonite	是	
总量:				100.00		100.00			

6. Immersed for 25 days

2018/6/27

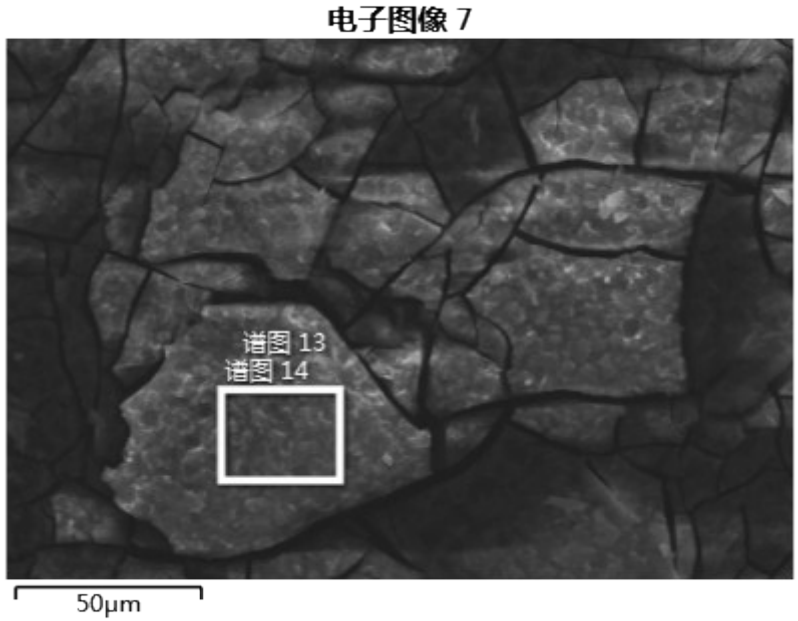


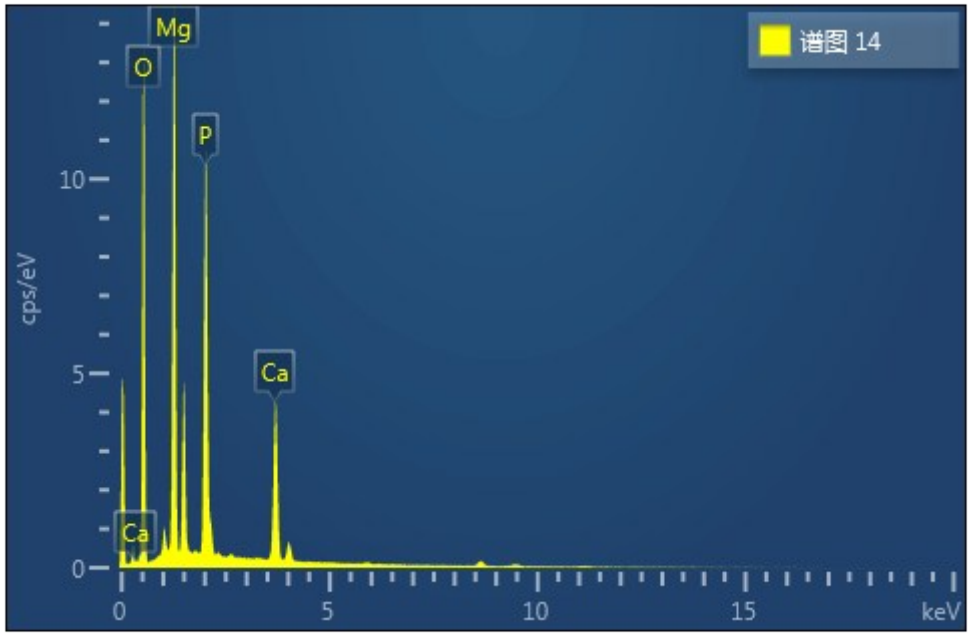


元素	线类型	表观浓度	k 比值	wt%	wt% Sigma	原子百分比	标准样品标签	厂家标准	标准样品标定日期
O	K 线系	72.93	0.24541	58.44	0.20	71.49	SiO2	是	
Mg	K 线系	19.53	0.12951	19.72	0.13	15.87	MgO	是	
P	K 线系	21.47	0.12008	13.72	0.11	8.67	GaP	是	
Ca	K 线系	10.04	0.08972	8.12	0.09	3.97	Wollastonite	是	
总量:				100.00		100.00			

7. Immersed for 30 days

2018/6/27





元素	线类型	表观浓度	k 比值	wt%	wt% Sigma	原子百分比	标准样品标签	厂家标准	标准样品标定日期
O	K 线系	71.22	0.23965	56.09	0.20	69.55	SiO2	是	
Mg	K 线系	21.84	0.14487	20.39	0.13	16.63	MgO	是	
P	K 线系	25.01	0.13986	14.97	0.12	9.59	GaP	是	
Ca	K 线系	11.24	0.10045	8.55	0.09	4.23	Wollastonite	是	
总量:				100.00		100.00			