

Supplementary Information

Influence of ceria addition on crystallization behavior and properties of several bioactive glasses in the $\text{SiO}_2\text{-CaO-P}_2\text{O}_5\text{-CeO}_2$ system

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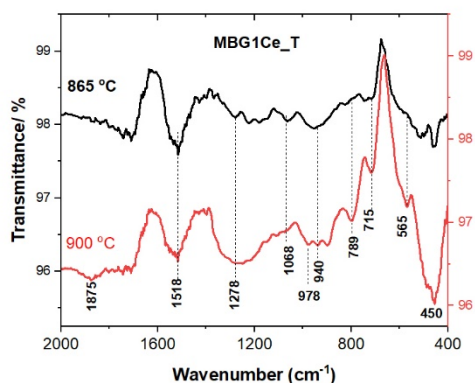


Figure S1. FT-IR spectra of the MBG1Ce annealed at 865 and 900 °C

Table S1UV-Raman band positions of the annealed MBG5Ce_T spectra and assignments within 330-1200 cm^{-1} spectral range

CeO_2	MBG5Ce_T				Assignment	Reference
	RT	830	876	906		
456		392	390	404	Si-O-Si bending	
		437			$[\delta(\text{O-P-O}^-)]$ in $\text{Q}^0(\text{P})$	
	459		446		F_{2g} modes of CeO_2	43
				464	quartz	44
	531	499	549	512		
	575	562		572	Si-O-Si vibrations in $\text{Q}^2(\text{Si})$	
	620	595, 624	590		CePO_4 and Si-O-Si	45

				vibrations in Q ² (Si)	
		642	634	Si-O-Si bending in	46
				Wollastonite	
833		827	785	P-O-P symmetric stretch	46
848	848	857	840	Si-O stretch of Q ⁰ (Si)	24
947	937		944	P-O stretch of Q ⁰ (P)	24 and 43
974	990	950	967	Si-O stretch in Q ² (Si)	24
	1097			$\nu_1(\text{CO}_3^{2-})$	47
1152			1153	Si-O-P bonds (1140 cm ⁻¹)	32
1167		1186		2LO modes of ceria, $\nu_3(\text{PO}_4)$ and Si-O stretch of Q ⁴ (Si)	44, and 24
		1237	1272	1249	
0.9981	0.9990	0.9981	0.9989	R ²	

Table S2 Results (T_x and T_{cl}) of fitted DSC curves of the MBG(0/1/5Ce)

β /°C min. ⁻¹	MBG0Ce				MBG1Ce				MBG5Ce			
	T _x /°C	T _p /°C	FWH M /°C	T _x - T _g /°C	T _x /°C	T _p /°C	FWH M /°C	T _x -T _g /°C	T _x /°C	T _p /°C	FWH M /°C	T _x - T _g /°C
5	859	868	21.98	345	854	855	18.75	214	761	815	48.66	123
10	866	878	23.58	340	853	865	19.65	211	788	830	41.17	149
15	867	882	24.72	344	860	872	21.40	208	794	837	41.08	145
20	871	888	26.05	343	861	875	21.41	206	800	842	40.13	150
25	876	892	27.35	348	860	878	23.11	201	811	845	38.71	159

T_x=onset temperature of the first crystallization event

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