

Supporting information for the manuscript entitled:

Crystallization mechanisms in new bismuth borotellurite glass-ceramics

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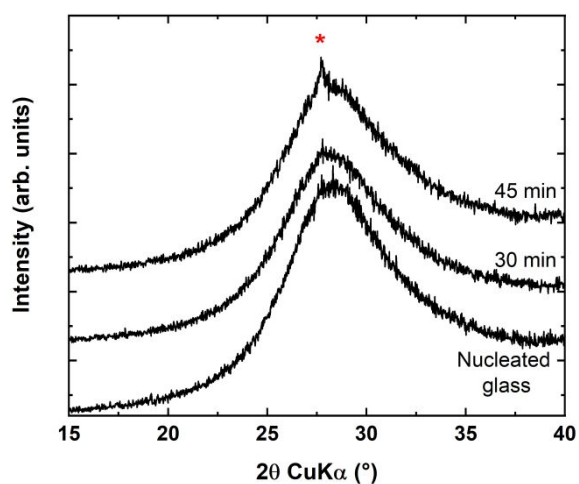


Figure S1: Zoom in the 15-40° 2θ range allowing to better evidence the early stages of crystallization after 45 min spent at 450°C.

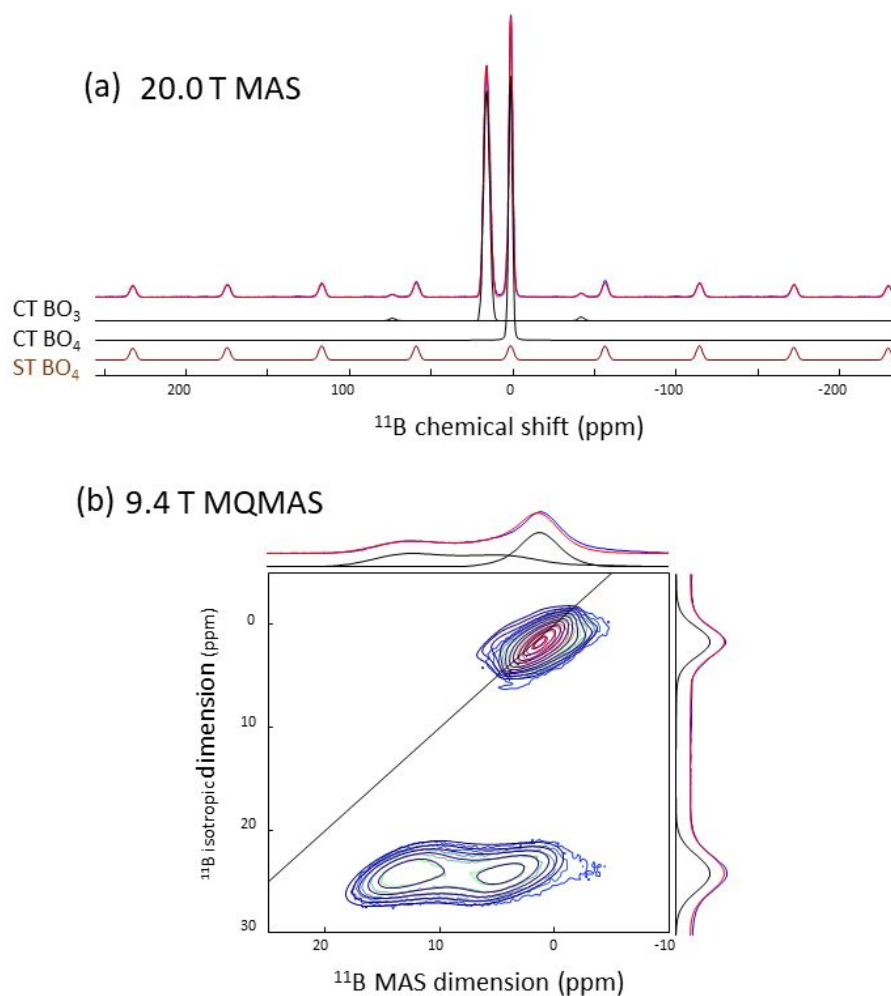


Figure S2: (a) Experimental (blue) and simulated (red) ¹¹B MAS NMR spectrum of the undoped quenched glass recorded at 20.0 T. The contributions associated to the distinct ¹¹B central (CT) and satellite (ST) transitions are shown below. (b) Experimental ¹¹B MQMAS spectrum of the quenched glass recorded at 9.4 T and its simulation (dark blue contour levels in the 2D map and red lines in the MAS and isotropic dimensions).

Table S1: ^{11}B mean isotropic chemical shift (δ_{iso}), isotropic chemical shift distribution (FWHM_{iso}), quadrupolar coupling constant (C_Q) and asymmetry parameters (η_Q) determined from fits of the ^{11}B MAS and MQMAS spectra of the undoped quenched glass.

Unit	δ_{iso} (ppm)	FWHM_{iso} (ppm)	C_Q (MHz)	η_Q
BO_3	18.2	3.3	2.55	0.23
BO_4	1.4	2.6	0.385	0.69

Table S2: Relative proportions of BO_3 and BO_4 units ($\pm 0.6\%$) in the undoped quenched glass, nucleated glass, nucleated samples heat-treated for 30, 60 and 120 min.

Sample	BO_3 (%)	BO_4 (%)
Quenched glass	58.4	41.7
Nucleated glass	56.6	43.4
Nucleated and heat-treated for 30 min	57.6	42.4
Nucleated and heat-treated for 60 min	58.1	42.0
Nucleated and heat-treated for 120 min	57.3	42.7

Specific comment on the EDS map recorded for the erbium element

The EDS map was also recorded for the erbium element (data not shown here). In fact, the small quantity (1 mol.% in Er) does not allow to obtain relevant information regarding the spatial distribution of the rare-earth ions within that GC sample. However, due to the low content, it must be stressed that Er does not play any role in the overall HAADF-STEM chemical contrast.