

Table S1. Synthesis conditions and volatiles composition of basanitic reference glasses.

Glasses	Synthesis method	Analytical technique	P GPa	T °C	Time h	Thickness ¹ cm	±	Density ² kg·m ⁻³	±	FTIR ³			CHNS ⁴			References		
										Water content wt%	± 1 σ	CO ₂ content wt%	Water content wt%	± 1 σ	CO ₂ content wt%			
BSN050417	GMF	FTIR	0	1300	4	0.0410	0.0005	2841	37	0.023	0.001	0.00				Schiavi et al. (2018)		
BSN081117-1	PC	FTIR/ CHNS	1.5	1325	3	0.0054	0.0007	2811	21	2.21	0.13	0.54	0.02	2.46	0.02	0.69	0.05	Schiavi et al. (2018)
BSN081117-2	PC	FTIR/ CHNS	1.5	1325	3	0.0055	0.0007	2794	11	2.48	0.10	1.76	0.03	2.57	0.06	1.76	0.04	Schiavi et al. (2018)
BSN101117-1	PC	FTIR/ CHNS	1.5	1325	3	0.0095	0.0001	2793	43	1.92	0.07	0.82	0.03	1.87		0.85	0.05	Schiavi et al. (2018)
BSN101117-2	PC	FTIR/ CHNS	2.2	1325	3	0.0015	0.0003	2790	48	2.86	0.17	2.59	0.06	3.06	0.06	2.91	0.01	Schiavi et al. (2018)
BSN150121	PC	FTIR/ CHNS	2.5	1390	3	0.0034	0.0002	2778		3.02		3.94		2.78		3.69	0.05	This study
BSN210121	PC	FTIR/ CHNS	2.5	1390	3	0.0017	0.0002	2772		2.89		4.44		2.83		4.46	0.05	This study

Abbreviations: GMF, gas-mixing furnace; PC, piston cylinder apparatus; P, pressure; T, temperature; t, time; FTIR, Fourier Transform Infrared Spectroscopy; CHNS, Elemental analysis; n.d. not determined.

¹Thickness of BSN150121 and BSN210121 was determined 1) by counting the interference fringes on the IR spectra collected in reflective mode during the FTIR analysis and 2) by measuring the microscope vertical displacement between the two polished surfaces of the reference glasses when Raman laser is focused on them.

²Density of BSN150121 and BSN210121 was calculated by extrapolation of the linear regression defined by the five glasses of Schiavi et al. (2018) (see text). Density of the reference glasses of Schiavi et al. (2018) was measured by Archimedes' method.

³Water contents were determined using the molar absorption coefficient for water band at 3500 cm⁻¹ (57.3 ± 1.8 L·mol⁻¹·cm⁻¹) provided by Shishkina et al. (2014). CO₂ contents of reference glasses were quantified using the molar absorption coefficients determined in this study (this explains little differences with the values reported in Schiavi et al., 2018). The values given are the average of several measurements, with the exception of BSN150121 and BSN210121.

⁴Water and CO₂ contents are the average of several measurements, with the exception of BSN101117-1, BSN150121 and BSN210121. The error associated with the CO₂ contents given for BSN081117-1, BSN101117-1, BSN150121 and BSN210121 is the largest difference between the CO₂ contents of the glasses obtained for two sessions.