

Supporting Information

Enhanced Hydrolytic Stability of Porous Boron Nitride *via* the Control of Crystallinity, Porosity and Chemical Composition

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Table S1. Key textural parameters derived from N₂ sorption isotherms obtained at -196°C for the various BN samples. From the data, one can observe the extreme sensitivity of porous BN to decomposition in the presence of water/moisture. Further, it is shown that synthesizing porous BN at higher temperatures enhances the hydrolytic stability.

Sample	S_{BET} [m² g⁻¹]	V_{tot} [cm³ g⁻¹]	V_{micro} [cm³ g⁻¹]	V_{micro}/ V_{tot} [%]
High surface area BN				
Pure	1666	1.16	0.66	57.1
Acid wash 24 h	52	0.022	0.021	99.1
Water wash 24 h	51	0.022	0.021	99.1
Acid wash 1 h	21	0.012	0.008	75.2
Water wash 1 h	16	0.022	0.016	75.1
Humidity 8 h	5	0.020	0.002	10.0
Humidity 1 week	10	0.020	0.010	50.0
Low surface area BN				
Pure	43	0.078	0.016	20.5
Acid wash 24 h	389	0.296	0.147	49.7
Water wash 24 h	23	0.039	0.005	12.8
Acid wash 1 h	100	0.141	0.040	28.4
Acid wash 24 h – Water wash 24 h	157	0.180	0.060	33.3
Water wash 1 week	222	0.324	0.083	25.6
High temperature BN				
Pure	981	1.01	0.43	0.43
Water wash 24 h	311	0.44	0.12	0.27

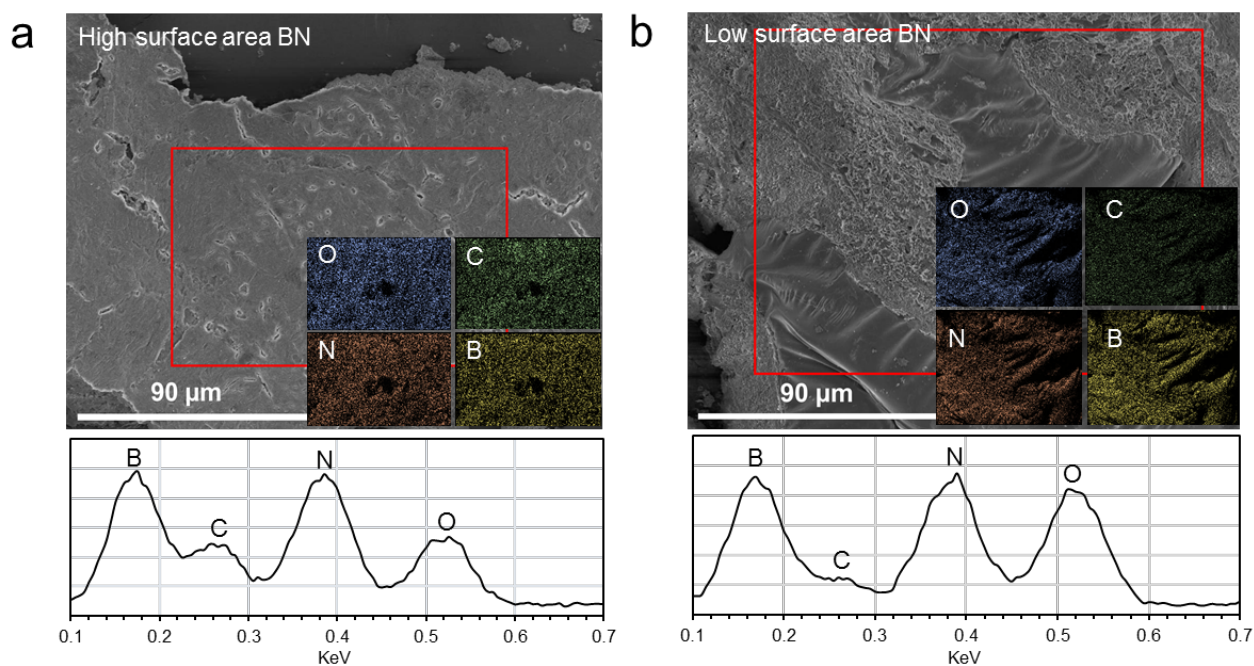


Figure S1. (a, b) SEM EDX spectrum of the high and low surface area BN samples with EDX spectra shown.

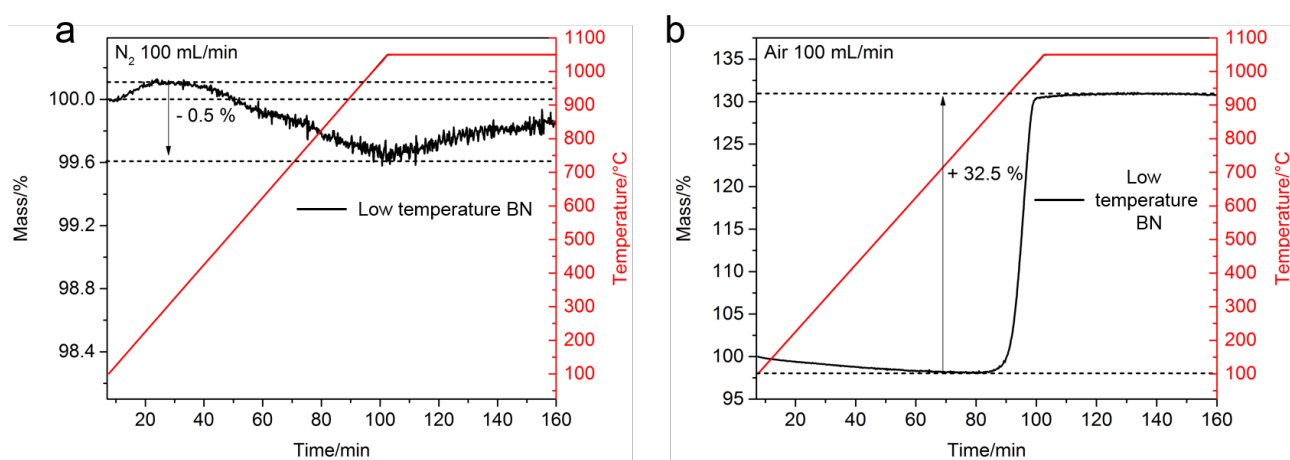


Figure S2. Thermogravimetric analysis of the low temperature BN sample under (a) nitrogen flow and (b) air flow.

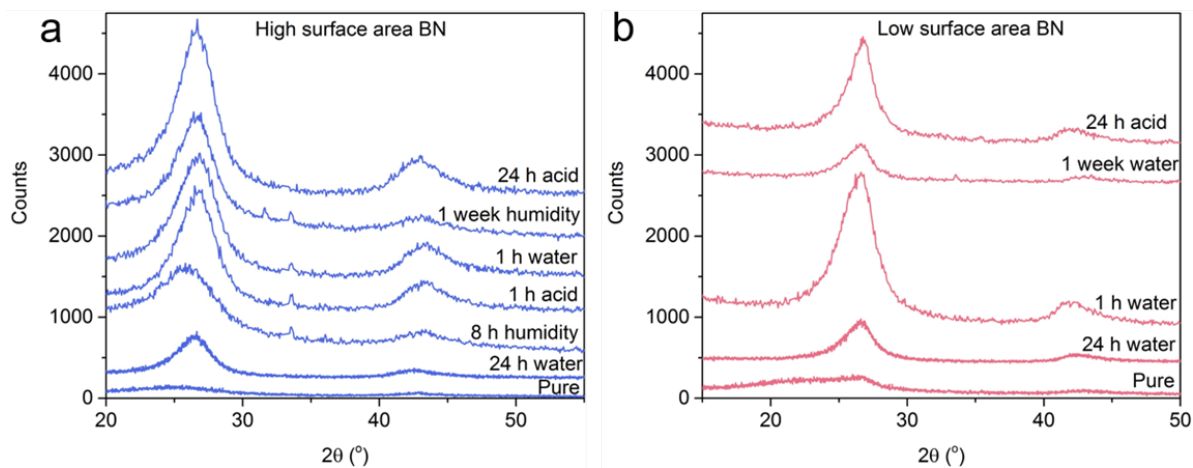


Figure S3. (a, b) XRD patterns for high and low surface area BN samples, before and after various degrees of exposure to aqueous solutions, investigated in this study. All of the samples exhibit an amorphous, turbostratic character.

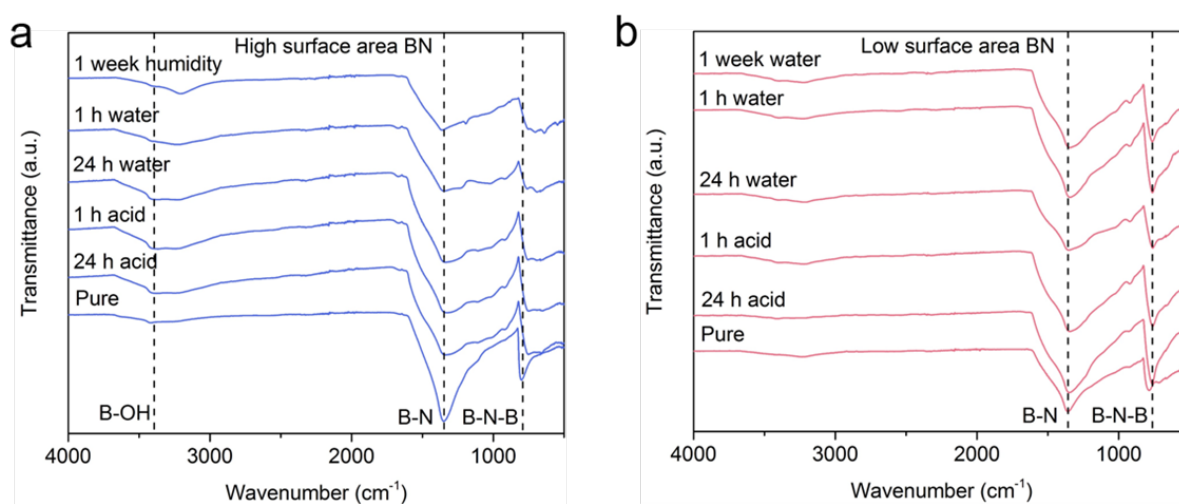


Figure S4. (a, b) FT-IR spectra of porous BN samples before and after hydrolysis with the key characteristic bands at $\sim 1350\text{ cm}^{-1}$ (B-N in-plane stretching), $\sim 1000\text{ cm}^{-1}$ (B-O bending), $\sim 800\text{ cm}^{-1}$ (B-N-B out-of-plane bending), and $\sim 3400\text{ cm}^{-1}$ (B-OH stretching).

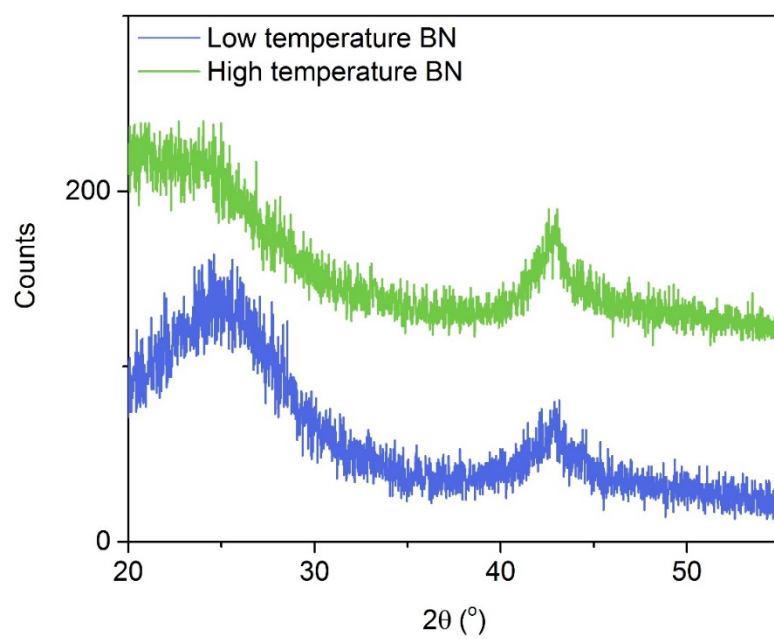


Figure S5. XRD patterns for high and low temperature BN samples before water exposure.