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ARTICLE TYPE

Synthesis and characterization of perovskite-type $BaMg_{0.33}Nb_{0.67-x}Fe_xO_{3-\delta}$ for potential high temperature CO_2 sensors application

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Supporting Information

1. Lattice constant variation as a function of Fe incorporation
2. EDX data of as-prepared samples
3. FT-IR spectra of BMN and BMNF samples before and after CO_2 treatment
4. FT-IR spectra of the as-prepared BMN and BMNF samples
5. TGA of the as-prepared BMN and BMNF samples
6. FT-IR spectra of the H_2O vapor treated BMN and BMNF samples
7. Response and recovery transients of BMNF17 and BMNF33 in synthetic air

1. Lattice constant variation as a function of Fe incorporation

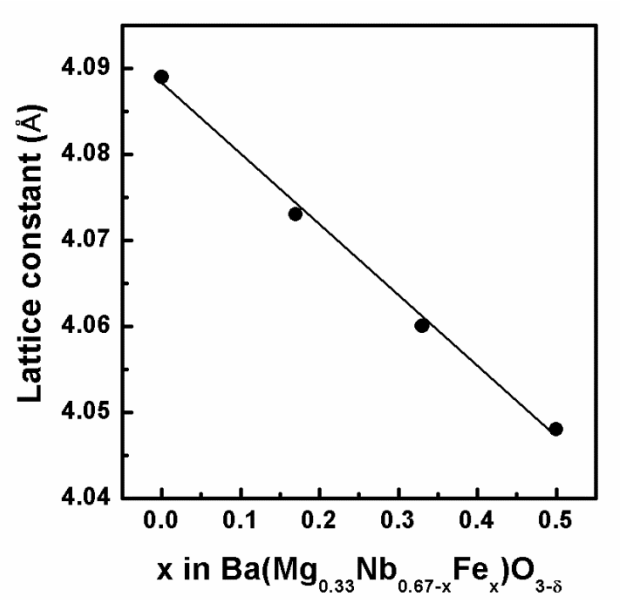

Figure S1. Variation of lattice constant as a function of Fe concentration in $Ba(Mg_{0.33}Nb_{0.67-x}Fe_x)O_{3-\delta}$.

2. EDX data of as-prepared samples

Table S1. EDX data obtained on the as-prepared perovskite-type $Ba(Mg_{0.33}Nb_{0.67-x}Fe_x)O_{3-\delta}$ (x = 0, 0.17, 0.33, 0.50).

Element	Atomic percentage (%)			
	BMN	**BMNF17**	**BMNF33**	**BMNF50**
Ba	25	25	32	22
Mg	8	12	7	6
Nb	18	15	11	7
Fe	---	6	11	12
O	49	42	39	53

3. FT-IR spectra of BMN and BMNF samples before and after CO_2 treatment

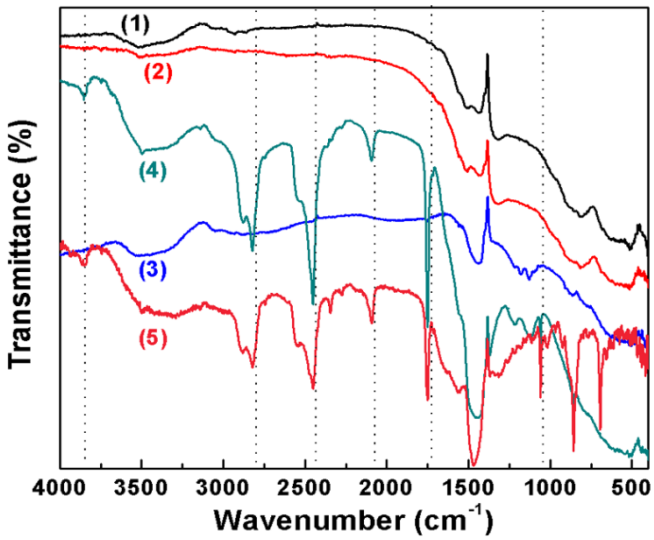

Figure S2. FT-IR spectra obtained on (1) BMN before CO_2 treatment (2) BMN after CO_2 treatment, (3) BMNF33 before CO_2 treatment, (4) BMNF33 after CO_2 treatment and (5) FT-IR of $BaCO_3$ commercial powder obtained from Alfa Aesar.

4. FT-IR spectra of the as-prepared BMN and BMNF samples

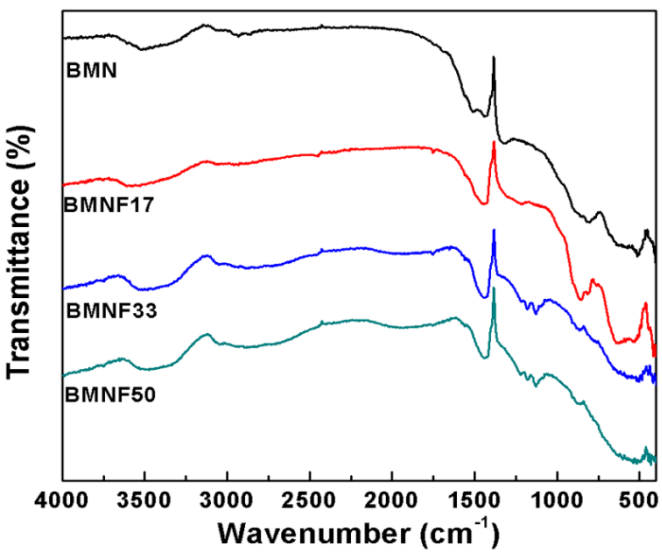

Figure S3. FT-IR spectra obtained on as-prepared BMN and BMNF samples.

5. TGA of the as-prepared BMN and BMNF samples

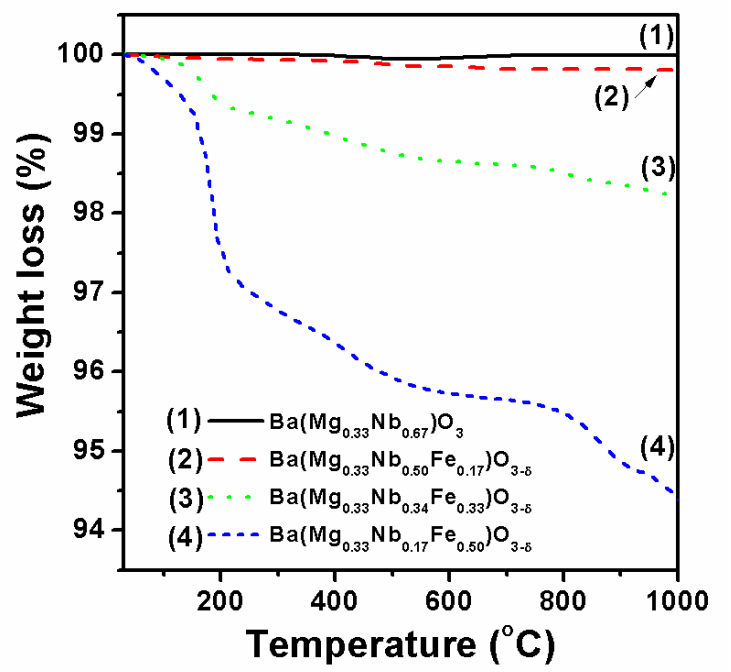

Figure S4. TGA plots obtained on as-prepared BMN and BMNF samples.

6. FT-IR spectra of the H_2O vapor treated BMN and BMNF samples

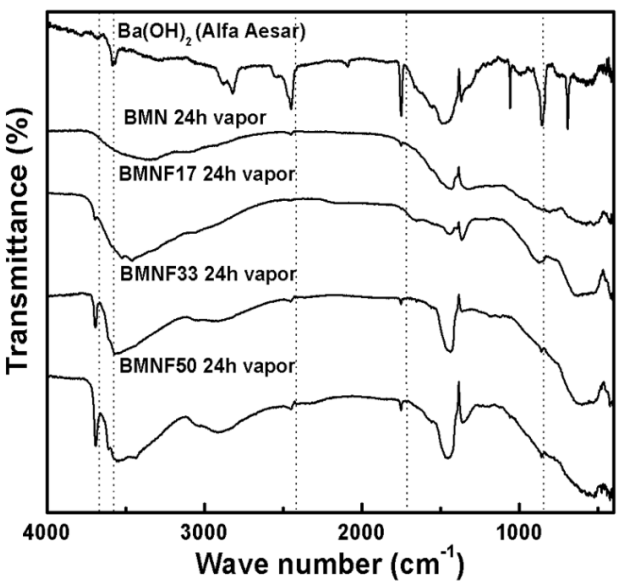

Figure S5. FT-IR spectra obtained BMN and BMNF samples after exposure to H_2O vapor at 90°C for 24 h.

7. Response and recovery transients of BMNF17 and BMNF33 in synthetic air

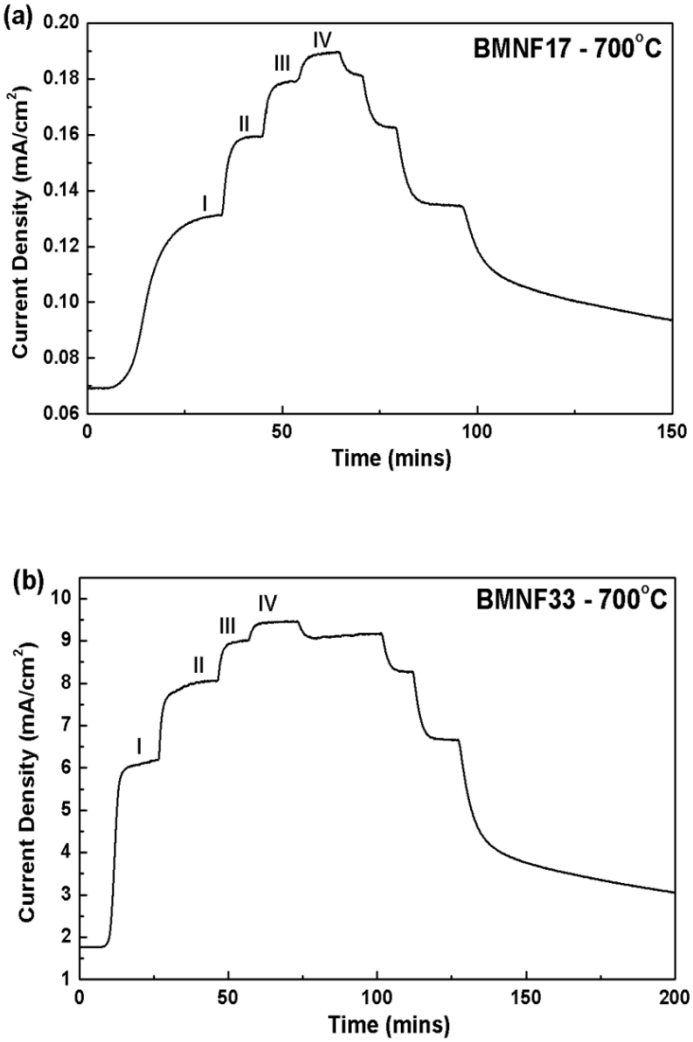

Figure S6. Response and recovery transients of (a) BMNF17 and (b) BMNF33 at various concentrations of dry synthetic air (21% O_2 in N_2) at 700 ^oC (Applied voltage = 0.1V). I, II, III and IV represent synthetic air concentrations corresponding to their 100, 500, 1000 and 1500 ppm of CO_2 balanced in dry synthetic air counterpart purged inside the gas-tight quartz cell, respectively.