Electronic supplementary information to

Low temperature synthesis of barium oxynitridosilicates using $BaCN_2$ and SiO_2

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Figure S1

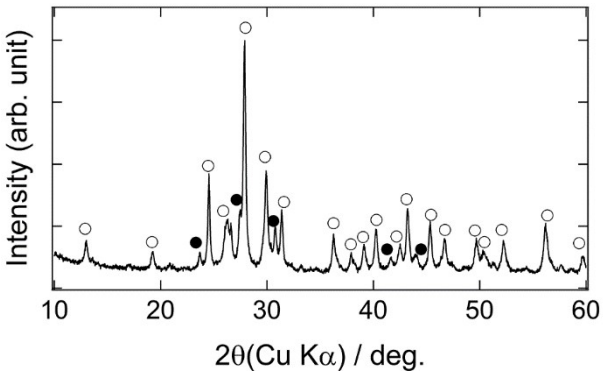

Figure S1 XRD pattern for the sample after the Q-MS analysis under Ar flow. The filled and open circles indicate peaks attributed to $Ba_3Si_6O_{12}N_2$ and $Ba_3Si_6O_9N_4$, respectively.

Figure S2

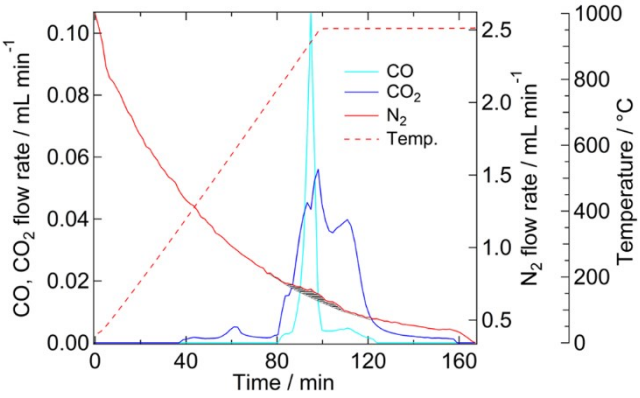

Figure S2 GC curves for CO, CO_2 and N_2 gases released from $BaCN_2/2SiO_2$ mixture under Ar flow. The heating rate was 10 °C/min, which was the same as that for the TG-DTA measurement. Obvious nitrogen gas generation was observed around 800 °C, emphasized as a hatched area on the curve.

Figure S3

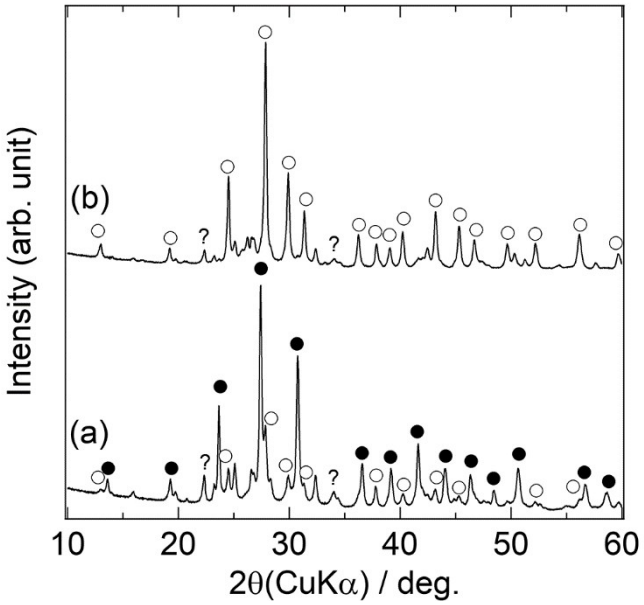

Figure S3 XRD patterns for the products obtained at (a) 800 °C and (b) 950 °C after 15 h under Ar flow of 50 mL/min. The filled and open circles indicate peaks attributed to $Ba_3Si_6O_{12}N_2$ and $Ba_3Si_6O_9N_4$, respectively. Unknown peaks are marked with "?".

Figure S4

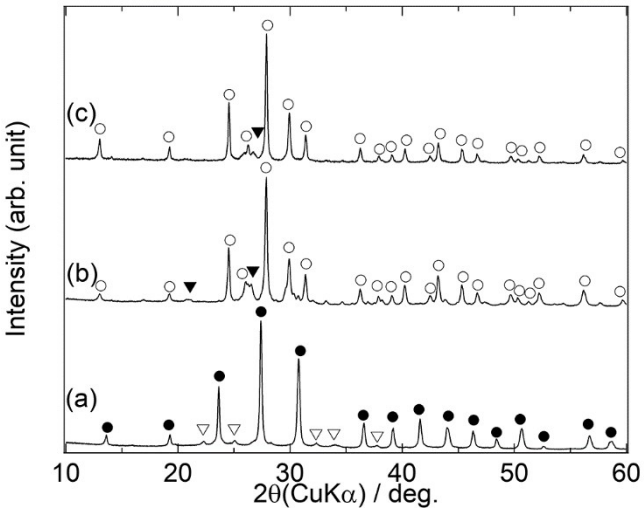

Figure S4 XRD patterns for products obtained at (a) 800 °C for 15 h, (b) 800 °C for 50 h and (c) 950 °C for 15 h in Ta container sealed under N_2 atmosphere. The filled and open circles and filled and open triangles indicate peaks attributed to $Ba_3Si_6O_{12}N_2$, $Ba_3Si_6O_9N_4$, SiO_2 and $BaCO_3$, respectively.

Figure S5

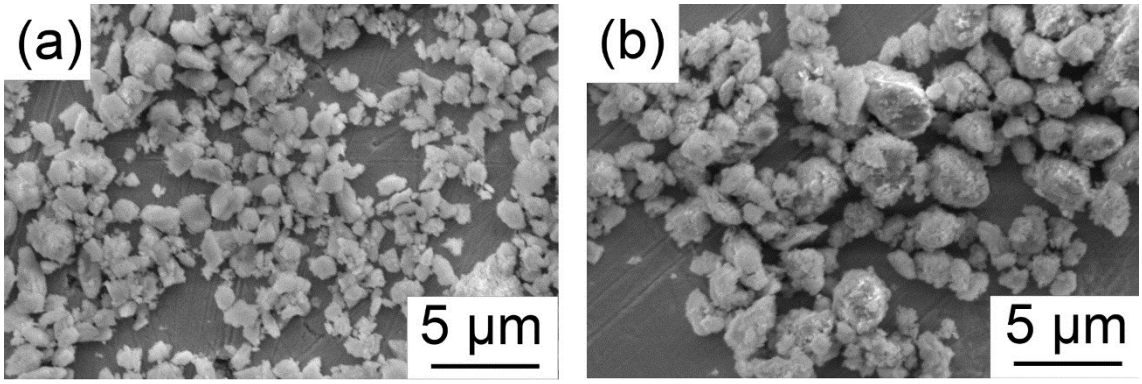

Figure S5 SEM images of the Eu-doped products (a) $Ba_3Si_6O_{12}N_2$ at 800 °C and (b) $Ba_3Si_6O_9N_4$ at 950 °C obtained for 15 h under a N_2 atmosphere.