Scheme S1. Schematic illustration of the semi-closed system used for preparation of g-$C_3N_4$ sample.

Fig. S1 Wide-angle XRD patterns of dicyandiamide calcined at different temperatures, which are attributed to melamine, melem and melon at 573K, 623K and 723K, respectively.

Fig. S2 TG–DTA of dicyandiamide calcined in different atmospheres with a heating rate of 10 K min$^{-1}$. 
**Fig. S3** FT-IR spectra of CNP0 and CNP6 samples.

**Fig. S4** The BET surface area and pore volume of porous g-C₃N₄ obtained from melamine via window size, and the synthesis process is same as that of CNPn samples.

**Fig. S5** The BET surface areas of CNP6, CNP9 and CNP12 samples.