

Supporting Information

A graphitic carbon nitride-coated quartz crystal microbalance gas sensor for H₂ detection

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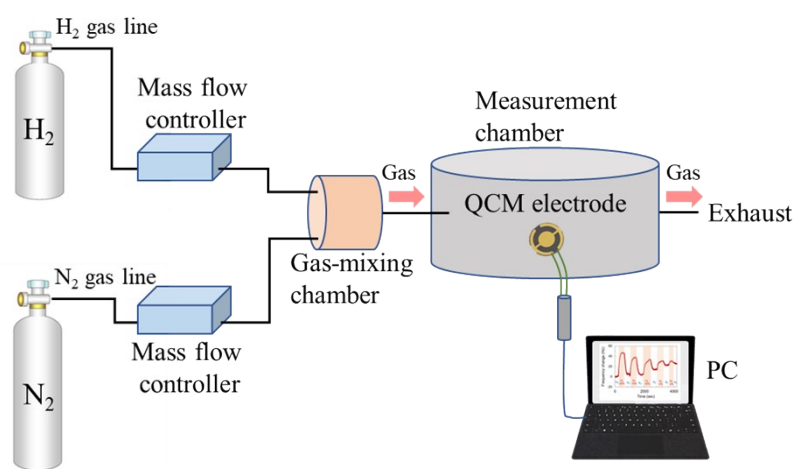


Fig. S1. Schematic diagram of the QCM gas sensor measurement apparatus.

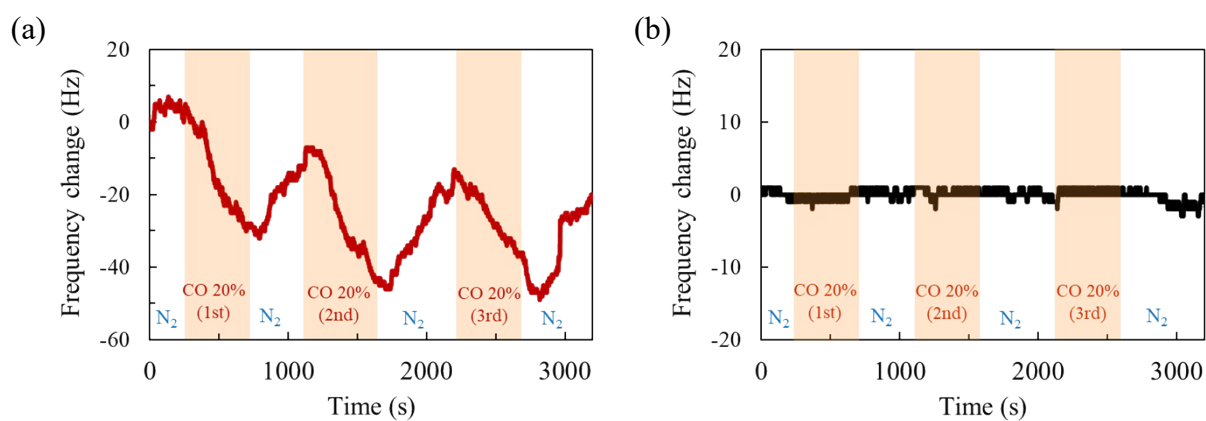


Fig. S2. Time dependence of the change in the resonant frequency upon the introduction of 20% CO gas: (a) For the g-C₃N₄ modified electrode, and (b) for the bare electrode.

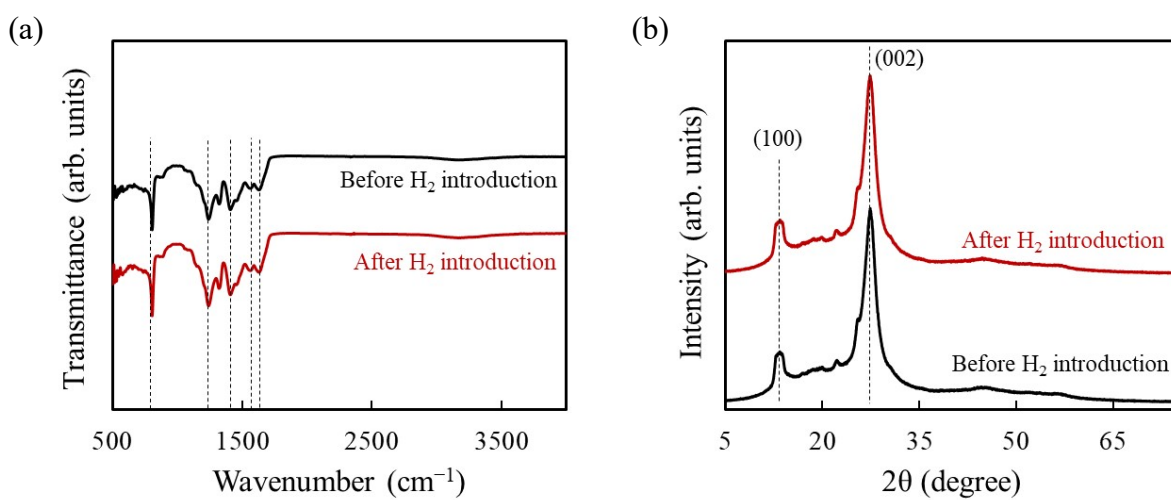


Fig. S3. (a) FT-IR spectra of the g-C₃N₄ powder before and after 20% H₂ gas introduction and (b) XRD patterns of the g-C₃N₄ powder before and after 20% H₂ gas introduction.

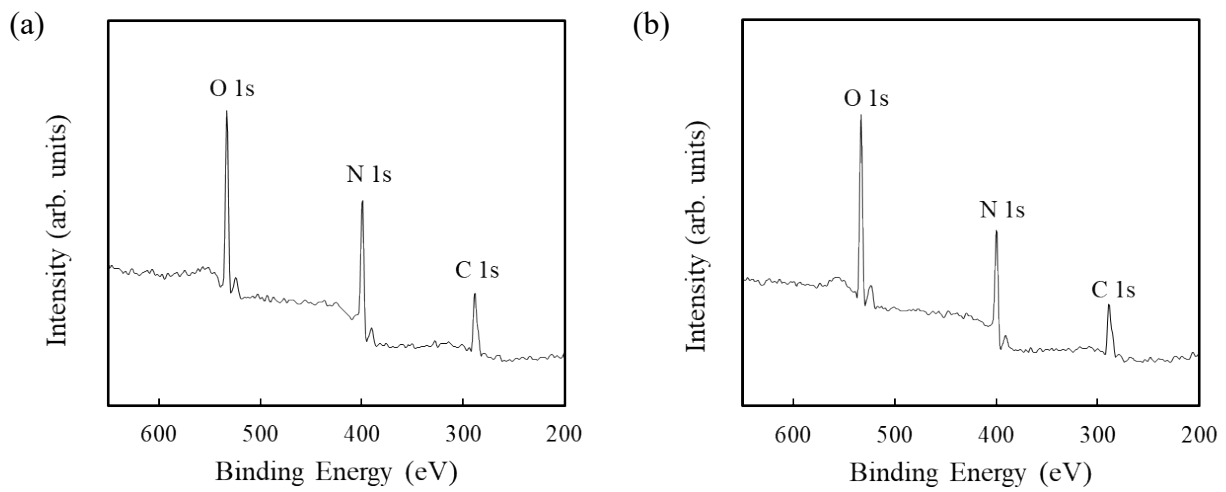


Fig. S4. XPS survey spectra of the g-C₃N₄ film (a) before H₂ gas introduction and (b) after 20% H₂ gas introduction.

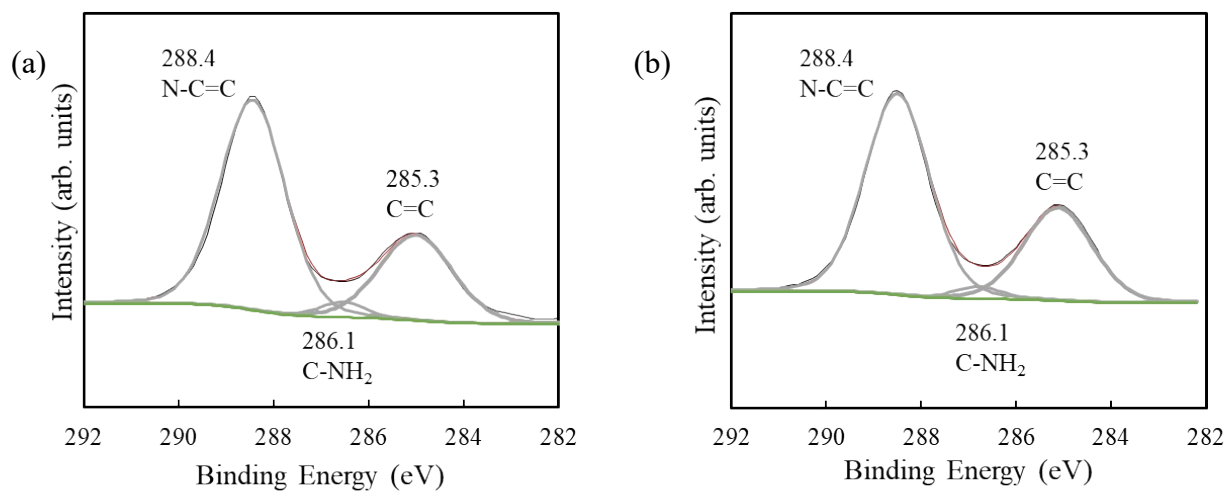


Fig. S5. XPS C 1s spectra (a) before H₂ gas introduction and (b) after 20% H₂ gas introduction.

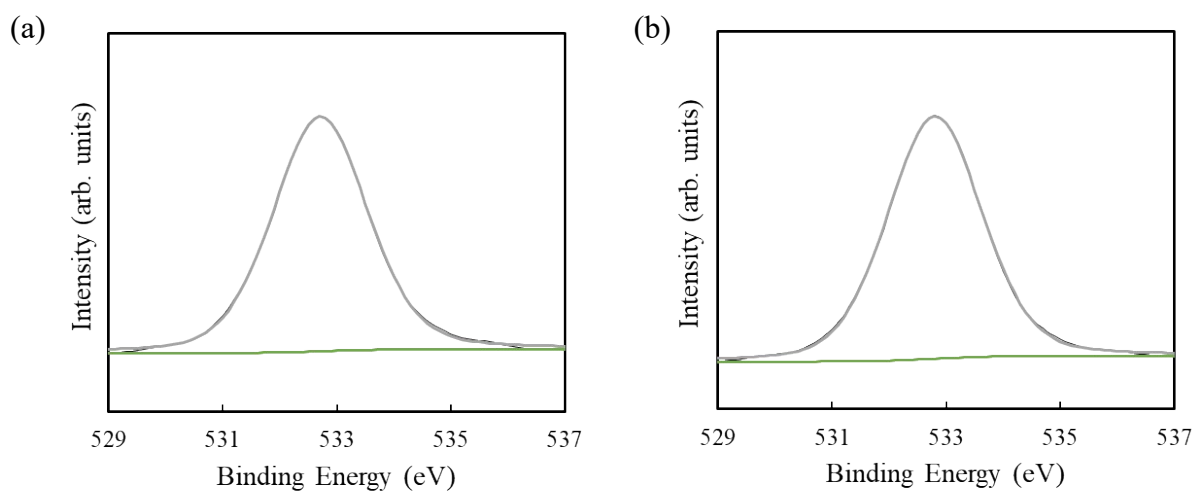


Fig. S6. XPS O 1s spectra (a) before H₂ gas introduction and (b) after 20% H₂ gas introduction.

Table S1. Atomic concentrations and C/N ratios of the melamine-based g-C₃N₄ film before and after the introduction of 20% H₂ gas, as calculated from the XPS survey spectra

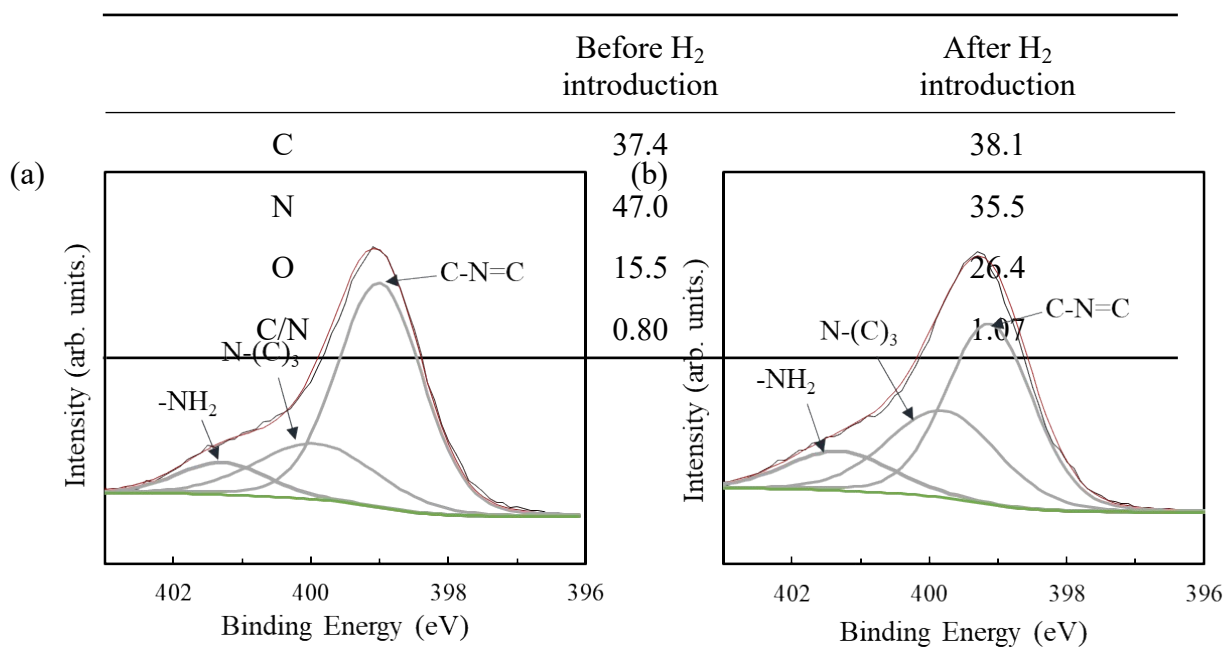


Fig. S7. XPS N 1s spectra of melamine-based g-C₃N₄: (a) before H₂ gas introduction and (b) after 20% H₂ gas introduction.

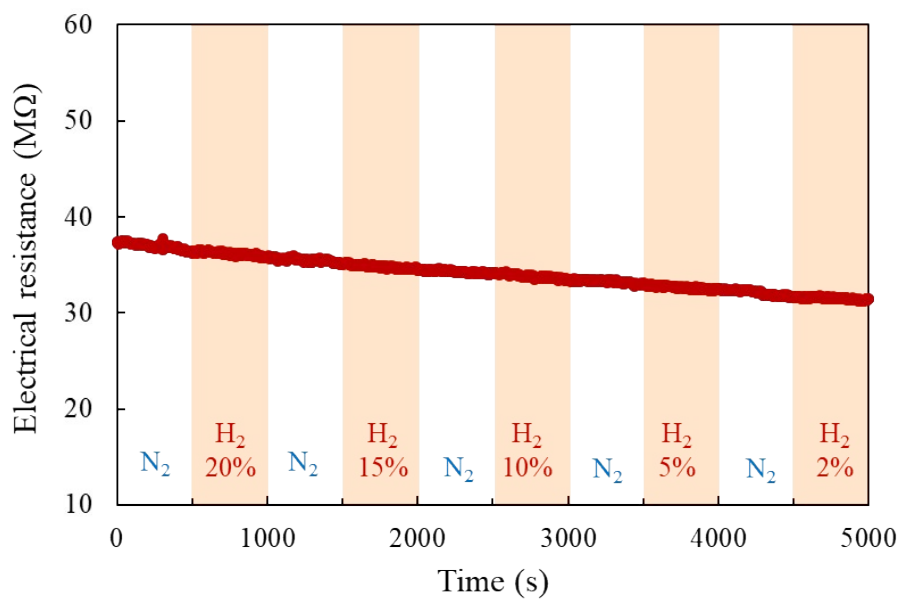


Fig. S8. Variation in the electrical resistance of the g-C₃N₄ film over time upon the introduction of H₂ gas at various concentrations.