# Oxygen-Containing Triazines as a Precursor to Synthesize Graphitic Carbon Nitride for Efficient Visible Light-Driven Hydrogen Evolution from Water

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The photocatalytic activity of graphitic carbon nitride (g-CN) is still not considered as practical owing to the large bandgap and fast recombination of photoexcited charge carriers. To mitigate these, we develop a functional g-CN using oxygen containing triazines as a precursor for structural functionalization. This precursor was prepared from bulk g-CN treated with high-concentrated sulfuric acid at high temperature. Resulting BCN-SA-CN has increased carbon, oxygen contents and decreased bandgap (2.59 eV) than pristine BCN (2.84 eV). As a result, BCN-SA-CN exhibits photocatalytic hydrogen evolution reaction rate of 4.57 μmol/h under the visible light (>420 nm) by almost two times higher than that (2.37 μmol/h) of BCN due to the charge localization effect by C, O co-doping. This study highlights sulfuric-acid treatment of g-CN can be an efficient way to prepare the g-CN with enhanced photocatalytic activity.