

## Effects of the precursors on the photocatalytic water splitting activity of ZnS/CdS compounds

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CdS-based calcogenic photocatalysts show the highest efficiency of hydrogen production by photocatalysis reaction in aqueous solution medium containing sulfide ions [1]. The work aim was to understand the influence of the ZnS precursor crystallinity on the formation of heterostructured PdS/ZnS/Cd<sub>1-x</sub>Zn<sub>x</sub>S photocatalysts and also the influence of the synthesis temperature and time on photocatalysts activity. Particularly, Cd<sub>1-x</sub>Zn<sub>x</sub>S type photocatalysts can be obtained by various techniques including hydrothermal method. We use hydrothermal technique due to the fact that this method allows the obtaining of high crystallinity and large surface area photocatalysts [2]. Photocatalyst's morphology and its compositional homogeneity was determined by SEM, TEM/EDX, crystallinity by XRD and the optical properties of the material by UV-VIS and photoluminescence spectroscopies. Photocatalytic reactions were conducted at room temperature under visible light irradiation. It was observed that the precursor's crystallinity has greater impact on the photocatalytic performance than the synthesis temperature and the reaction time. This confirm that the efficiency of hydrogen production can be influenced and improved by controlling of crytalinity of photocatalysts.

### References:

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