



Supplementary Materials

## CuSCN as the Back Contact for Efficient ZMO/CdTe Solar Cells

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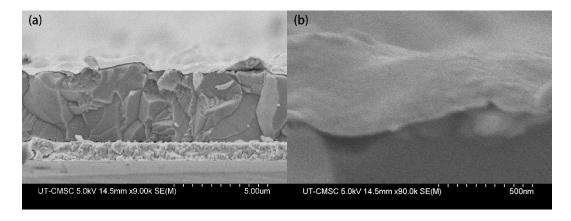
Step 1: FTO/ZMO/CdTe stack with CdCl<sub>2</sub> treatment

Step 2: Spin-coating CuSCN layer varied by different CuSCN concentrations and spin-coating speeds

Step 3: Activation varied by different temperatures

Figure S1. Schematic illustration of technological steps and investigation design in this work.

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**Figure S2.** Cross-sectional SEM images of complete devices with CuSCN as back contact in (a) low and (b) high magnification.

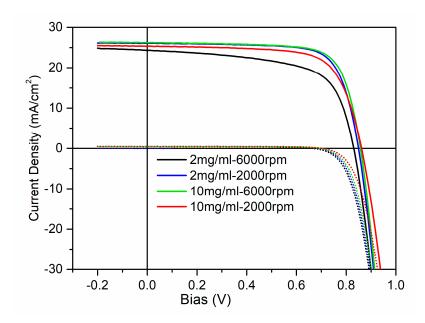
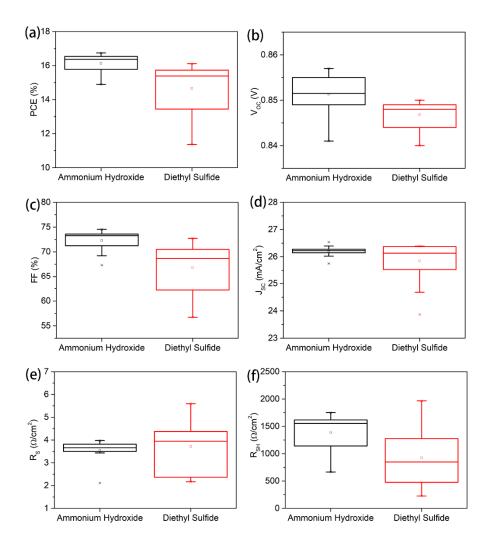


Figure S3. J-V curves the best cells in devices with different CuSCN thickness.

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**Figure S4.** Statistical results for MZO/CdTe solar cell performances of **(a)** PCE, **(b)** Voc, **(c)** FF, **(d)** Jsc, **(e)** series resistance (Rs), and **(f)** shunt resistance (RsH) with different CuSCN solutions.



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