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The invention relates to the field of solar energy conversion and can be used to the elaboration of photoelectrochemical solar batteries.

Summary of the invention consists in the fact that in the photoelectrochemical solar battery comprising of a photoelectrode and a counter-electrode, placed into an electrolyte solution, comprising the oxidation-reduction system, the photoelectrode is made of a semiconductor of *n*-type ZnIn_2S_4 and as electrolyte is used aqueous solution Na_2S_4 - Na_2S_2 .

The technical result of the invention consists in the sulphur ions interexchange from the photoelectrode surface and from the electrolyte solution that leads to the reduction of photoelectrode photocorrosion.