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The Investigation on the Stratification Phenomenon of Aluminum Rear Alloyed Layer in Silicon Solar Cells

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Highlights

- A stratification phenomenon of Al rear alloyed layer in solar cells is found.
- The stratification phenomenon is related to the formula of the paste.
- From the analyses, the stratification phenomenon is redundant and deleterious.
- The highest cell's efficiency without stratification phenomenon is close to 20%.

Abstract: A stratification phenomenon of aluminum rear alloyed layer was found in the study of aluminum rear emitter N-type solar cells. It is related to the composition of the paste. The outer aluminum alloyed layer can be called as aluminum doped emitter, and it gives the contribution to the junction formation. The inner layer is only the Al/Si mixed layer. The aluminum atoms in this layer are not bonded with silicon atoms. This inner layer will ruin the quality of the rear junction. The shunt resistance, reverse current density and the junction electric leakage value are getting worse when the

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