

SolarTech Power Solutions

Double glass component separation



Overview

Does a polymeric material exhibit a phase separation-induced glass transition?

In this study, we report on a polymeric material synthesized from a blend of a high T_g polymer and a plasticizer, exhibiting a phase separation-induced glass transition around the upper critical solution temperature (UCST).

Can phase separation be used to fabricate complex glass parts?

Analogously to conventional porous glass fabrication methods, we exploit phase separation phenomena to fabricate complex glass parts displaying light-controlled multiscale porosity and dense multicomponent transparent glasses with arbitrary geometry using a desktop printer.

How does phase separation occur in metallic glasses?

From this point of view, phase separation in metallic glasses can occur by liquid-liquid separation during cooling from the liquid melts or by separation into two glasses in frozen-in glass during heating. Earlier reports on phase separation mostly deal with the latter type of phase separation.

Is three phase separation possible in metallic glass system?

As the temperature goes down, Ti-rich phase undergoes the phase separation in the (Ti-Al-Co)- (Y-Al-Co) pseudo-binary miscibility gap forming Y-rich phase in Ti-rich phase, which is referred to as a cascade reaction . Above mentioned example clearly demonstrates that three phase separation is possible in metallic glass system. Fig. 19.

How is phase separated metallic glass formed?

For the formation of phase separated metallic glass, liquid-liquid phase separation takes place first during cooling and then each liquid phase experiences glass transition at lower temperature. Considering that GFA and T_g are strongly dependent on the alloy chemistry, phase separated two liquid

phases, in general, have different GFA and T_g .

Why is phase separation a problem in glass-ceramics?

Phase separation has often been a source of problems for glass production (Morey, 1954). It modifies the deteriorating the quality of the final glass. However, the production of heterogeneous materials containing phases of different nature and morphology can be considered an advantage in the field of glass-ceramics. The wide range of

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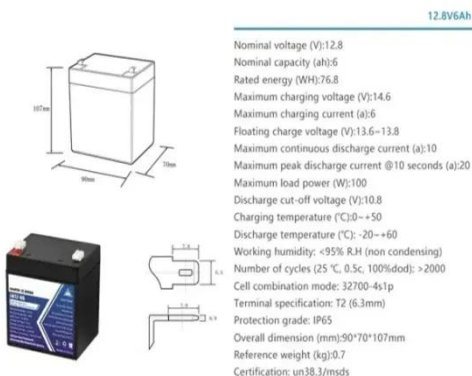


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Aalborg Universitet Double glass transitions in phase

...

C occurs in the primary glass phase, while the second glass transition with a T_g value of around 410 °C appears in the second phase. The second glass transition becomes more pronounced ...

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Phase separation in metallic glasses

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...



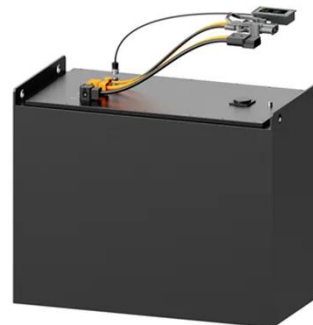
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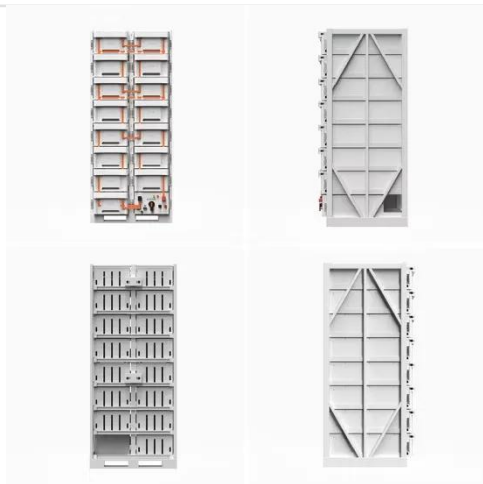
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