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Tri-layer nonwoven membrane with shutdown property and high robustness as a high-safety lithium ion battery separator

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Abstract

This paper presents a tri-layer membrane featured with double amido functionalized poly(ether ether ketone) outer layers and a poly(methyl methacrylate) interlayer and its application as a lithium ion battery separator. On one hand, the outer layers possess outstanding stability and endurance, which helps the tri-layer membrane to resist harsh conditions. On the other hand, the fusible interlayer can melt to block the pores of membrane once temperature is higher than 100 °C, which helps to prevent the lithium ion transmission between electrodes to terminate reactions in LIB. As a result, the tri-layer membrane exhibits remarkable features, including high

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