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(54) Title: GEL-TYPE POLYMER ELECTROLYTE AND USE THEREOF

(57) **Abrégé/Abstract:**

A gel-type polymer electrolyte, wherein said polymer comprises(A) an ethylene-unsaturated carboxylic acid copolymer or a derivative thereof and (B) a polyalkylene oxide having a hydroxyl group at one terminal thereof or a derivative thereof, which are bonded together by an ester bond. The gel-type polymer electrolyte has a high ionic conductivity, and makes it possible to provide a cell which has excellent charge/discharge characteristics at low temperatures as well as at high temperatures.

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DESCRIPTION

GEL-TYPE POLYMER ELECTROLYTE AND USE THEREOF

(Technical Field)

5 The present invention relates to a gel-type polymer electrolyte comprising a non-halogen type polymer, and, particularly, to a polymer electrolyte that can be molded into a self-supported (self-erected) film and can, particularly, be used for polymer lithium cells
10 suppressing the formation of lithium dendrite (tree-like traces) that occurs on the negative electrode surface when being electrically charged. The electrolyte can further be used for the capacitor.

(Prior Art)

15 The lithium secondary cells that have now been placed in the market are using, as electrode materials, a carbon-intercurled material as a negative electrode and lithium cobaltate (LiCoO_2) as a positive electrode to reversibly release and receive lithium ions accompanying the electric
20 charge and discharge. Further, the electrolyte is used being dissolved in a lithium salt. What is generally called polymer lithium cell is a so-called polymer electrolyte cell using a polymer electrolyte instead of a liquid electrolyte.

25 The polymer electrolyte cells are all of the solid type and are free from the leakage of liquid, features high degree of safety, excellent workability, making it possible to decrease the thickness of the cell or to laminate the cells. The polymer electrolyte cell must use
30 a polymer material that exhibits an ionic conductivity of the order of as high as 10^{-3} S/cm. As for polymerizing the electrolyte, development and study have been forwarded concerning chiefly polyethylene oxide (PEO), polyacrylonitrile (PAN), polymethyl methacrylate (PMMA)
35 and polyvinylidene fluoride (PVDF). In particular, there

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In this case, it is desired that:

1. The solvent exists in the electrolytic solution at a ratio of from 30 to 95% by weight, preferably 30 to 90% by weight, on the basis of the sum of said polymer and said electrolytic solution;
2. The eletrolyte exists in the electrolytic solution at

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