FABRICATION OF MAGNESIA FIBERS

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ABSTRACT: The fabrication of porous magnesia fibers could be classified into two steps. Porous magnesia fibers used as a binder of the electrolyte for thermal batteries. The dimensional stability and large surface area contact of porous magnesia fibers with molten electrolyte should account for the superior physical and electrochemical performances of model cell fabricated with porous MgO fibers. In order to prevent the leakage of molten electrolyte and, in consequence, shortage of the electrodes, the electrolyte is usually immobilized by some inert binders such as SiO2, TiO2, ZrO2, BN, and ceramic fibers.

The preparation method of magnesium oxide multiporous fiber comprises the steps:
1. Polyoxyethylene glycol is dissolved in the deionized water with a certain amount of molecular weight, adds an amount of MgSO 47H 2O stirs under the room temperature, slowly drips an amount of precipitation agent NaOH solution while stir then, obtains mixing solutions.

2. The solutions is transferred to the teflon-lined autoclave under 150^{o} to160^{o} C of temperature to carry out hydrothermal treatment consists 10 to12 hours.

3. The alkali magnesium sulfate fiber is put into an electric resistance furnace and carry out segmentation decomposition and roasting, obtain the porous magnesia fiber, the technology of its process is as follows: be warming up to 250^{o} to 300^{o} C with 3 to 5 ^{o}C/min speed earlier and make it to lose a small amount of planar water and whole crystal water, rise to 450^{o} to 500^{o} C with 1 ^{o}C/min again and make it to lose 5 hydroxy waters, calcine down at 800 to1000 ^{o}C at last and discharged one hour.

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