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根据细则 4.17 的声明:

- 关于申请人有权申请并被授予专利(细则 4.17(ii))
- 关于申请人有权要求在先申请的优先权(细则 4.17(iii))
- 发明人资格(细则 4.17(iv))

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(54) Title: SILICON POWDER COMPOSITION, METHOD, REACTOR AND DEVICE FOR PRODUCING HYDROGEN

(54) 发明名称: 用于产生氢气的硅粉体组合物、方法、反应器及装置

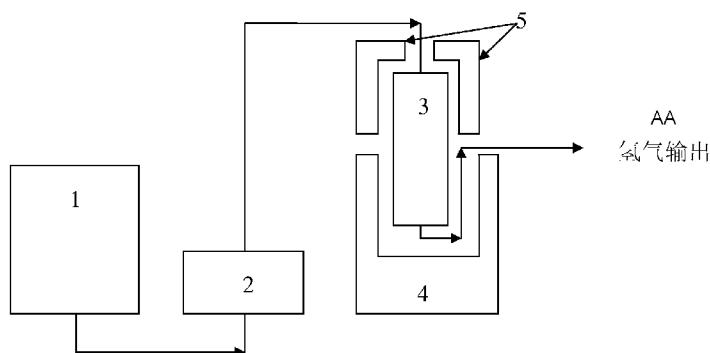


图 1 / FIG.1

AA Hydrogen output

(57) Abstract: Disclosed are a silicon powder composition, method, reactor and device for producing hydrogen. The silicon powder composition comprises a silicon powder, a precipitator and an alkaline substance, wherein the alkaline substance is a weak acid salt of an alkali metal, the mass ratio of the alkaline substance to the silicon powder is greater than or equal to 0.06:1 and less than or equal to 4:1, the silicon powder is a silicon powder with an average particle diameter of less than or equal to 1 mm, and the molar stoichiometric ratio of the precipitator to the silicon in the silicon powder is greater than or equal to 0.12:1 and less than or equal to 4:1. Also disclosed are a method and reactor for producing hydrogen, and a device for producing hydrogen. The silicon powder composition of the present invention is an optimized formulation which needs no pre-treatment, contains no highly corrosive alkalis, and does not easily burn or explode even when coming into contact with water due to inappropriate storage. The reactor structure and the device of the present invention also have relatively high practicability.

(57) 摘要:

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本国际公布:

— 包括国际检索报告(条约第 21 条(3))。

本发明公开了一种用于产生氢气的硅粉体组合物、方法、反应器及装置。所述硅粉组合物包含硅粉、沉淀剂以及碱性物质，其中，所述的碱性物质是碱金属的弱酸盐；所述碱性物质与硅粉的质量比为大于等于 0.06:1，小于等于 4:1；所述的硅粉为平均粒径小于等于 1mm 的硅粉；所述的沉淀剂与硅粉中的硅的摩尔计量比大于等于 0.12:1，小于等于 4:1。本发明还公开了制备氢气的方法、反应器、用于制备氢气的反应装置。本发明的硅粉体组合物是不需要预处理、不含强腐蚀性碱、保存不当而遇水时也不易燃爆的优化配方；本发明的反应器结构及装置的实用性也较强。