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Electrolysis Process For Producing Sodium Metal At A Low Operating Temperature

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TECHNOLOGY READINESS LEVEL (TRL)

- TRL 3

PATENT/ GRANTED NUMBER

- MY-150922-A

TECHNOLOGY OVERVIEW

The present invention relates to an electrolysis process for producing sodium metal at a low operating temperature, comprising the steps of: introducing an electrolyte solution to an electrolytic cell comprising a graphite or carbon anode and an iron or copper cathode to conduct electrolysis process; and delivering an electrical current to the cell to librate sodium at the cathode and chlorine gas at the anode; characterized in that: the electrolyte solution comprises a sodium salt and a deep eutectic solvent, wherein the sodium salt is dissolved in the deep eutectic solvent at a temperature of 120?C; and wherein the deep eutectic solvent comprises a quaternary salt selected from a group consisting of…

quaternary ammonium halide and quaternary phosphonium halide; and a hydrogen bond donor (HBD) at 1:1-5 molar ratio of quaternary salt to hydrogen bond donor.

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