Aluminum Rich Aluminum-Tin Alloy for Splitting Water

A common method of producing hydrogen fuel is by splitting the hydrogen atoms from water molecules using a chemical reaction. This may be accomplished through the use of aluminum-based alloys that react with water; however, such existing alloys will corrode if not sealed in air-tight containers before use. When current aluminum-based alloys are exposed to high humidity, the corrosion will make the alloy less effective for producing hydrogen. A demand exists for an aluminum-based alloy with an extended shelf life, without the need of being stored in air-tight containers, which can then be used to produce hydrogen on demand. Purdue researchers have developed a new aluminum-tin (Al-Sn) alloy for splitting hydrogen from water. This new alloy does not corrode when exposed to high humidity, and it can be used to produce hydrogen more efficiently than existing alloys using the same amount of raw material. These properties make the Al-Sn alloy ideal for use as a long-term energy storage material.

Domain:
Chemical Engineering

Advantages:
• Long-term energy storage
• Hydrogen fuel production on demand
• Does not corrode in high humidity conditions

INNOVATOR BIOGRAPHY

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