

ABSTRACT OF THE DISCLOSURE

The invention provides a system and a method for generating high pressure hydrogen that is able to efficiently and safely generate hydrogen only by electrolysis of water even by using an electric power generated by a frequently varying natural energy such as sunlight without using any compressors. The system comprises an electrolysis cell using polyelectrolyte membranes, particularly a double-polarity multi-layered type electrolysis cell having a specified structure is disposed in a vessel for storing generated hydrogen, preferably for storing cooled hydrogen under a high pressure hydrogen atmosphere. High pressure hydrogen is generated by electrolysis of pure water using the electrolysis cell by suppressing the pressure applied to the cell to a pressure below the pressure resistance of the cell using a differential pressure sensor and pressure controller.



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